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TEXTILE WORLD RECORD

LORD & NAGLE COMPANY ~ BOSTON · MASS.

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The TEXTILE-FINISHING MACHINERY CO.

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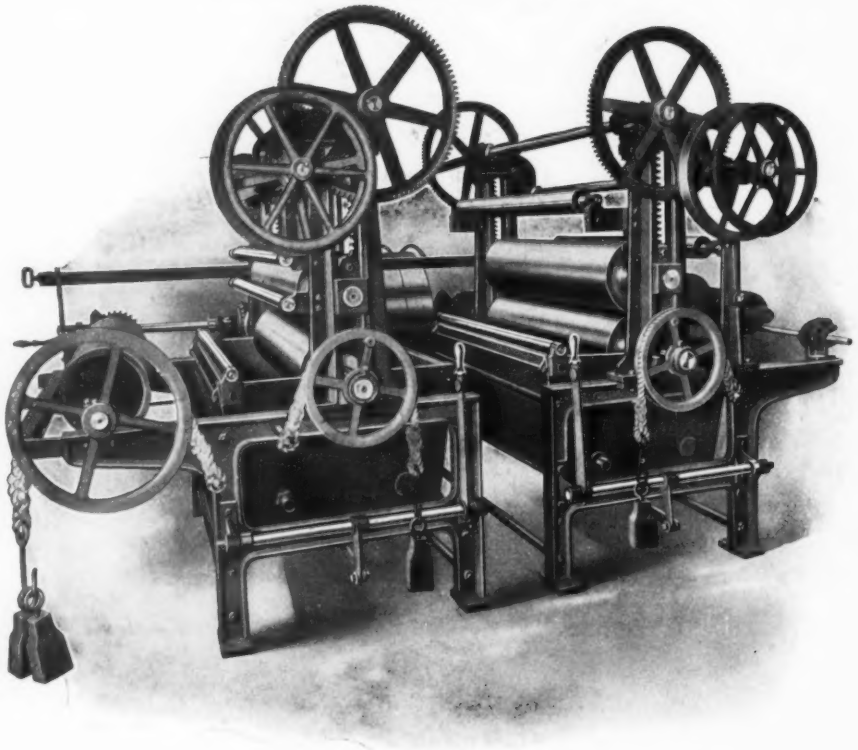

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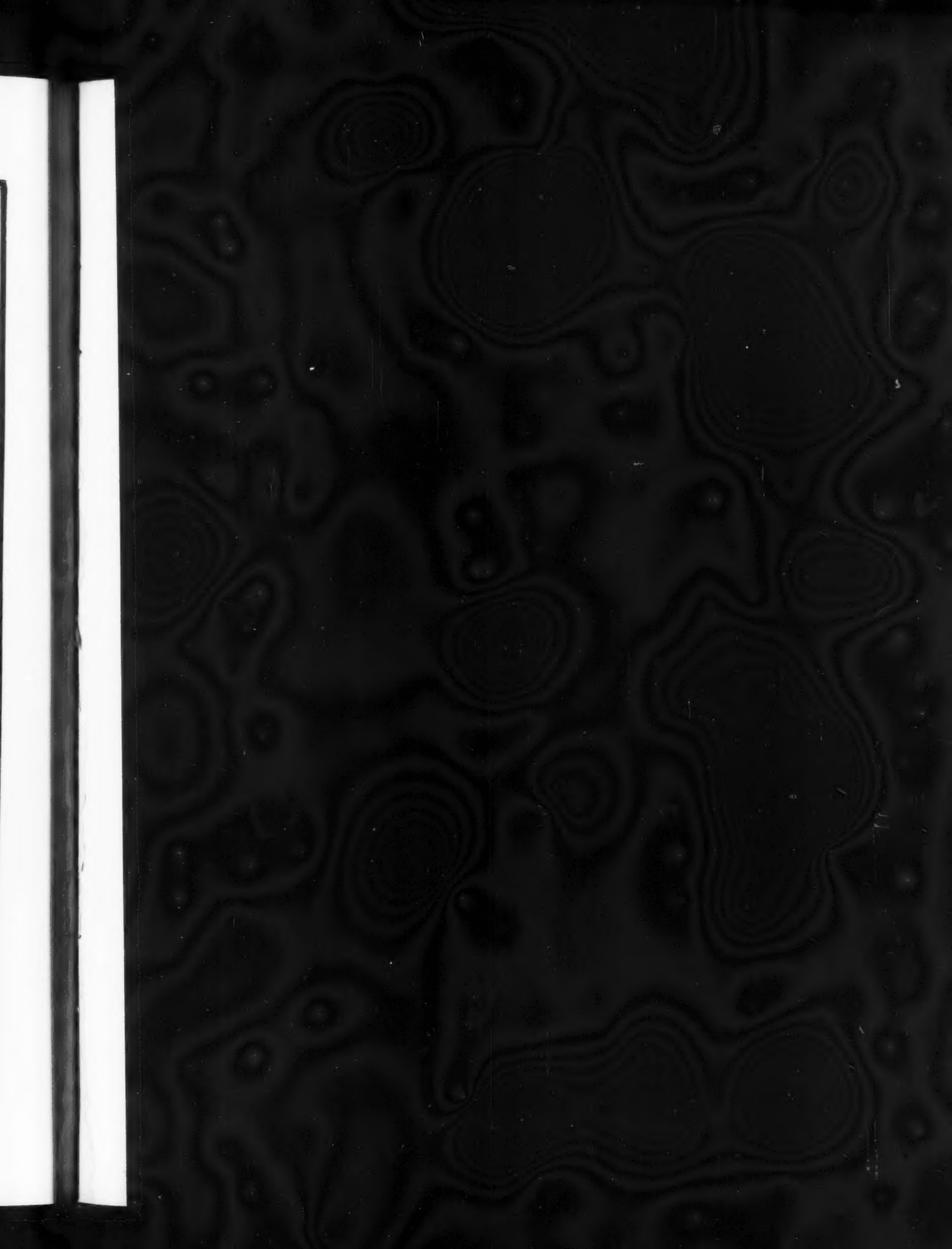

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Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

C. E. RILEY, Pres.
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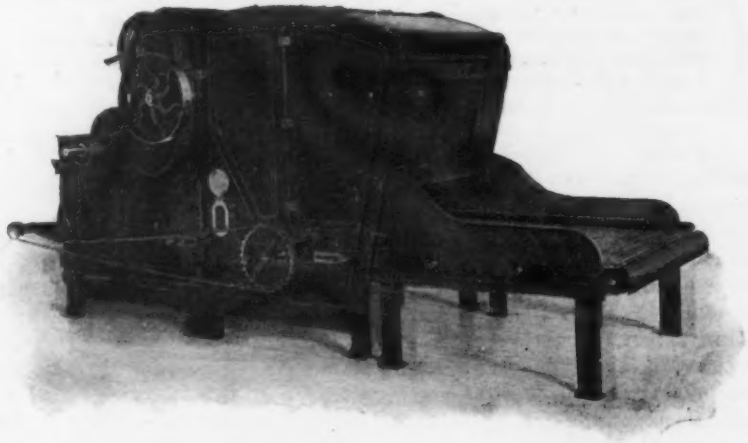

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TEXTILE WORLD RECORD

MARCH, 1912

Monthly Comment.

Made in America

The members of the Boston Wool Trade Association at the meeting in January decided unanimously that they would each buy a suit of clothes of American-made cloth in order to encourage the use of American-made fabrics. To put this resolution into effect the Association had on exhibition at its rooms, 246 Summer St., a collection of samples of wool goods, supplied by a number of the leading Boston jobbers of wool cloths. The object of the exhibition was explained in the following letter:

Boston, February 5, 1912.

Dear Sir: In accordance with the unanimous vote taken at our last meeting, that the members of the Boston Wool Trade Association would buy a suit of clothes of American-made goods, there will be on exhibition at our rooms, 246 Summer St., February 12th to February 17th, samples of such cloths. These samples are furnished by our leading Boston jobbers; selections may be made and orders for goods may be given direct to your tailor, specifying the style number and the jobber who has it for sale. Your cooperation to make this exhibit a success is earnestly desired.

Frank W. Nash,
Secretary pro tem.

The prejudice in favor of foreign wool goods has long existed in this country and accounts for a large part of the importations of high-grade wool goods. Knowing the popular prejudice for foreign goods tailors with an easy conscience have been known to sell American-made goods as foreign. This prejudice is particularly strong in the United States, but we may extract some comfort from the knowledge that it is a human failing that affects all countries to a greater or less extent. In France there is a prejudice in favor of Belgian woolens, which makes the life of the customs officials along the Belgian border more active than it otherwise would be. In England a preference for French woolens has been encountered in some quarters, while in Germany the preference for English wool goods is so strong as to lead the Verein deutscher Tuch-und Wollwarenfabrikanten, representing employers of 75,000 operatives, to petition the Kaiser to exert his influence to check it. Complaint was made particularly regarding the prejudice in favor of English wool goods on the part of the German nobility, army officers, government officials and the wealthy class. The Minister of Commerce, Sydow, to whom the petition was referred, reported after an investigation, that he found the preference for English over German wool goods to be unwarranted owing to the high quality and moderate price of German fabrics, but regretted that a correction of the fault was not within the province of the government. So it is in all countries. The remedy for the evil is to be found in making domestic goods equal to the foreign in quality and price, and in educating the public to a knowledge of that fact. The effort being made by the Boston Wool Trade is in the right direction, and we shall be deeply gratified to find the members of the Boston Wool Trade Asso-

ciation wearing clothing of wool goods made in America.

Japanese Competition

The new tariff which went into effect in Japan last year was framed so as to afford increased protection to home industry against the competition of foreign goods. At the time it was enacted there was much alarm, particularly in England, over the possibility of the loss of British trade with the Japanese. After an experience of six months under the new law these fears have been allayed and British exporters are looking forward to a continued increase in exports to Japan. The reasons for this belief are stated in a Tokio dispatch to the Manchester Guardian, and are of general interest owing to the publicity that has been given to the so-called "yellow peril." The first of Japan's industrial disadvantages to be mentioned is the great distance from the supplies of raw material. Cotton growing in Korea is not expected to relieve Japanese cotton manufacturers from their dependence on the United States, India and China. It is pointed out that the low daily wage level in Japanese cotton mills does not mean a correspondingly low cost per unit of production, owing to the low efficiency of the Japanese operatives. The cost of manufacturing will, it is said, go up rather than down, because of the demands of the help for higher wages. Another disadvantage is encountered in the higher cost of machinery and the greater allowance that must be made for depreciation. Practically the same conditions are said to prevail in Japanese wool manufacturing. The metal working industries of Japan are not expected to develop competition dangerous to foreign countries owing to the lack of raw material. Reference is made to an article on the future of Japanese industries in "Shin Nippon" (The New Japan), a magazine edited by Count Okuma, the conclusions being summarized as follows:

Cotton, extremely doubtful; coal, hopeless to expect to compete with the immense visible supplies of Britain, Germany, and the United States, while in China the Yangtse collieries are already dangerous competitors; iron, no future owing to lack of ore; silk, good unless driven out by recent inventions in America; lacquer ware, already driven out of Europe by German imitations.

Losses in the German Cotton Industry

The decline in the price of cotton has resulted in heavy losses to German cotton mills, owing to the shrinkage in the value of the mill stocks of raw cotton, cotton in process and finished goods. Following is the financial record of a few of the leading German mills for the past year:

Cotton Spinning & Mfg. Co., Augsburg, a loss of $285,677, as compared with a profit of $188,701 for the previous year; Cotton Spinning Mfg. Co., Kempten, a loss of $16,-861, as compared with a profit of $69.46 for the preceding year; Spinning & Weaving Co., Kaufbeuren, a loss of $49,796, compared with a profit of $3,214 the year before; Senkelbach Spinning Co., Augsburg, a loss of $20,391, compared with a profit of $156 the year before.

The German mills are thus illustrating the fact that a decline in the price of the raw material from an established level may prove as disastrous as an advance from such level. Owing to the heavy losses during the past year a number of German cotton spinners have been buying large stocks of American cotton at the present low prices in order to forestall, as far as possible, a repetition of their unfortunate experience this year.

Compulsory Working of Patented Inventions

British colonies are following the example set in 1907 by the mother country in requiring that a patent shall be revoked unless the invention is worked within a stated time on British soil. Australia adopted a compulsory working law of this kind some time ago. Canada had a similar law on the statute book before it was enacted in the United Kingdom. The latest change to compulsory working has been made in India. The new Indian patent act, which went into effect on Jan. 1, provides for the compulsory working of patents. The Manchester Guardian, which is apparently inconsolable over such marked tendencies toward protection to home industries, gives the following expla-

nation of the differences between the British and India provisions for compulsory working:

> In this country any patent, whether granted before or after 1907, may be revoked at the instance of a common informer who can show that after the patent has been in force for four years manufacture under it is being carried on mainly or exclusively abroad The new Indian Act applies only to patents granted under its provisions, and a petitioner who desires to have a patent revoked must show not only that after four years of life the patent is being manufactured mainly outside India, but that he himself is ready and willing to manufacture in India articles made in accordance with the patent specification, and that the patentee has refused to grant him a license on reasonable terms to do this.

The Guardian tries to soften the blow to free trade by citing the differences between the two acts as "evidence that experience has cast grave doubt upon the wisdom of the principal innovation in our own (British) patent laws." That, however, a mere surmise, a thought of which the wish is the father. The fact remains that the compulsory working patent laws adopted by Great Britain and Australia and now in India are proof that protection to home industry is rapidly becoming the policy of the United Kingdom and her colonies.

The New York Cotton Exchange

The annual dinner of the New York Cotton Exchange last month was the occasion for an interesting discussion of the economic justification for the existence of open speculative markets for trading in cotton and cotton contracts. While the topic apparently ignored the real issue, which is the reform and not the abolition of cotton exchanges, still the discussion was instructive and calculated to aid in reaching a solution of the problem. Prof. Henry C. Emery, chairman of the Tariff Board, discussed exchanges and trading in futures. He opposed the efforts to secure anti-option legislation. He said in part:

> A speculator assumes a risk, but is taking chances after having carefully studied the application of the law of supply and demand to the particular commodity or property he is buying or selling. A gambler, on the other hand, is merely guessing. In a gamble one must win and the other lose, but in speculation it is possible for both parties to the transaction to gain. Insurance is the assumption of a normal risk, and it affords an opportunity to shift the risk undertaken. All insurance is mutual and deals with unusual propositions, such as death or fire. Sometimes insurance goes out of its province and becomes a gamble. In the case of Lloyds, London, we have a mixture of legitimate insurance business and gambling.
>
> Exchanges are necessary institutions. They provide for dealing in future contracts and they are not evils. The Cotton Exchange and similar organizations afford merchants an opportunity to buy and sell property which has a value. It is possible for a merchant to know at any moment of the day the price his article commands. As regards speculation on the Exchange, it must be remembered that the operators determine their transactions only after careful study of the markets of the world, always bearing in mind the law of demand and supply. Successful speculation is attributable in a large measure to brains and good judgment.

The next speaker was John R. Abney, a lawyer identified with cotton legislation. He said:

> The members of the Cotton Exchange indulge in speculation and not in gambling. There was a time when I believed that the New York Cotton Exchange was a gambling institution, and I even filed a complaint against it once charging gambling. That was before I got at the bottom of things. Dealing on the Exchange is not gambling. It is speculation. There is a big difference between gambling and speculation. Gambling is where one side or the other must inevitably lose. In speculation all parties interested may gain. I can prove to any fair-minded man that gambling and speculation are entirely different.
>
> All property is divided into real estate and personal property. When you buy real estate you get a deed which represents the property passed in the transaction. Now in this State the deed is not necessary to a sale. When you buy property you get a contract that can be exchanged a hundred times within the thirty days before the transfer of title. The Court of Appeals has gone still further and said you could sell land short. The case is parallel with a transaction in cotton. There is the contract calling for a certain number of bales, and even though the cotton is in the field or in the warehouse, an actual commodity is sold and the contract is proof of that. Bucket shops are not even gambling places, but thieving institutions.

Congressman William Sulzer gave an account of the legislation now pending in Congress to regulate exchanges. He said:

> Twenty-eight bills designed to do something to cotton are pending in Congress at the present time. Do not worry about the legislative measures, but conduct your business honestly and industriously and without too much Government interference. There is nothing the matter with the Cotton Exchange. I have taken pains to con-

vince Congressman Burleson that the Exchange does not regulate prices and is of as much value to the farmers in the South as to the spinners in New England.

George W. Neville, president of the New York Cotton Exchange, who presided at the banquet, spoke at length on the question of cotton exchanges. He said in part:

It is a source of great satisfaction to me as your president that when, at a conference between committees of the American Cotton Manufacturers' Association (embracing the Southern cotton mills) and the National Association of Cotton Manufacturers (embracing the New England cotton mills), the New Orleans and the New York Exchanges, the committees from these two spinning associations lodged certain complaints against our methods, it was found on discussion that these complaints were due to a lack of understanding of our by-laws and rules. This conference, however, did make two recommendations to our Exchange, one of which has been adopted, and the other is under consideration by the warehouse and delivery committee.

President Neville then attempted to demonstrate the advantages of the New York Cotton Exchange by quoting from a letter which he said had been received by the superintendent of the Exchange from a "wool grower of Ft. McKavett, Texas," in all probability Col. Wm. L. Black, whose zeal in behalf of a wool exchange is well known to our readers. Following is an extract from the wool grower's letter:

You may not know it, but the wool men are buying our wool in the interior today at about 10 to 11 cents when the tariff is 11 cents and the price of wool in London is 15 to 20 cents per pound. They are simply robbing the grower and they do not want any interference if they can avoid it.

To give you some idea of the conditions of the wool-growing industry, I have called their (the wool dealers') attention to the fact that when I first made the effort to introduce dealing in future wool we were producing 350,000,000 pounds of wool and 15,000,000 bales of cotton. They know this to be the fact, for they cannot dispute it, and they are too selfish to surrender the hold they have on the product.

I know perfectly well that wool can be forced to the price of foreign wool, plus the tariff, if the future system is introduced, and I believe it can be forced higher.

When we started the Cotton Exchange in 1870, Liverpool immediately adopted the same system. I believe London will do the same with wool if the New York Exchange will arrange to buy and sell wool on contract, and there will be lots of money in it.

It would certainly be one of the best object lessons that could be given to the public if the New York Cotton Exchange could develop wool growing, and it would be a blessing to the country, for we would soon have a surplus, which would make the tariff inoperative, the same as with wheat.

With reference to "standard grades of wool," I can assure the Exchange that this is an easy matter to accomplish, which the dealers admitted when I first brought the idea forward. It involves the change from selling "wool in the grease" to the "scoured basis." In other words, wool must be bought and sold on the "scoured basis," which would necessitate a committee of experts to determine what the proper shrinkage of the wool is, as well as the correct classification. I believe you can employ experts to act in the capacity of a "committee" if the dealers are unwilling to become members of the Exchange.

Col. Black's letter had apparently made a deep impression on the mind of President Neville, who referred to it as follows:

This letter, gentlemen, seems to me to make a very strong presentation of the advantages of the cotton exchange to the cotton producers. The cotton exchanges do perform a service to the cotton producers by providing at all times a market for their merchantable and spinnable cotton, and, on the other hand, the constantly increasing use of the cotton exchanges by the spinners is emphatic of their opinion. One of the largest of our cotton manufacturers stated in my presence recently that he would not buy a large line of cotton from any merchant for future shipment, however strong he was financially, unless he believed that merchant protected himself by buying B-M contracts for the future delivery of cotton on some cotton exchange.

Col. Black makes the mistake of assuming that the problem of obtaining standard grades for wool can be solved by taking scoured wool as a basis. He would find out his mistake if he should obtain scoured samples of the different kinds of wool offered for sale in the markets of the world. If such a scheme as Col. Black has in mind were practicable it would have been adopted for the wool futures markets of Continental Europe. Those markets deal in wool futures, but the commodity is combed tops, which are combed wool in a partly manufactured condition. Even with tops as a basis the wool futures markets have developed such rank abuses that some of them have been abolished, while the others, notably the one at Roubaix, are under investigation with a view of putting them out of existence. Cotton exchanges undoubtedly can be made to perform properly a useful function, but citing a scheme for scoured wool futures is a poor way of demonstrating their usefulness.

"Bembergized" Wool

In our issue of October, 1911, we published an account of a German process for lustering wool, the invention of Dr. Emil Elsaesser, of Langefeld, Westphalia. We have since been informed that this process is controlled by the J. P. Bemberg, Aktien-Gesellschaft, Barmen-Rittershausen, Germany, the well-known dyers, mercerizers and builders of mercerizing machinery. They inform us that the Elsaesser process is now being worked successfully in one of their mills, where they are turning out "bembergized" worsted yarn having a beautiful luster. Samples of the yarn before and after being treated by the lustering process can be seen at our Boston office. It is stated that the yarn gained 33 1/3 per cent. in length without decrease in the strength.

THE TEXTILE EXHIBITION

Every foot of available space on the first floor of the Exhibition Hall in the Mechanics Building has been engaged for the Textile Exhibition, to be held April 22 to 27. The basement is also practically filled with exhibits for the cement and power exhibitions, held in conjunction with it. There is some space left in the galleries, which is going rapidly, and when the doors of the Exhibition are opened, it will be upon a full house. The experience of the management with previous exhibitions assures smooth running of every feature of the show.

The following list is complete up to March 1st, and the large number, representative character, and great variety, of exhibitors, assures the most interesting affair of this kind that has ever been held, and one which will attract manufacturers and all interested in the textile and power industry, not only from New England, but from all sections of the manufacturing states.

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THE KNIT GOODS EXHIBITION

The list of those who have already contracted for space at the annual exhibition of the National Association of Hosiery and Underwear Manufacturers, which is to be held in Philadelphia, May 6 to 10, is given below. The large number of bookings indicate that this year's exhibition will lead those of previous years. The exhibition will be held in the First Regiment Armory at Broad and Callowhill Sts.:

Andrevkovicz & Dunk, Philadelphia, Pa.
Barber-Colman Co,. Rockford, Ill.
Charles Beck Paper Co., Philadelphia, Pa.
Berlin Aniline Works, New York, N. Y.
Beckert Needle & Supply Co., Philadelphia, Pa.
Frank P. Bennett & Co., Boston, Mass.
Charles Bond Co., Philadelphia, Pa.
J. H. Bragdon & Co., New York, N. Y.
H. Brinton Co., Philadelphia, Pa.
Richard A. Blythe, Philadelphia, Pa.
H. V. Butz, Philadelphia, Pa.
Continental Latch Needle Co., New York, N. Y.
Albert Ivins Croll, Boston, Mass.
George C. Decker, Philadelphia, Pa.
Eastman Machine Co., Buffalo, N. Y.
The J. B. Ford Co., Wyandotte, Mich.
General Electric Co., Philadelphia, Pa.
Harding & Fancourt, Philadelphia, Pa.
C. E. Hardenbrook & Co., Philadelphia, Pa.
Hemphill Manufacturing Co., Pawtucket, R. I.
John W. Hepworth & Co., Philadelphia, Pa.
Hess-Bright Mfg. Co., Philadelphia, Pa.
Jenckes Knitting Machine Co., Pawtucket, R. I.
Kaumagraph Co., New York, N. Y.
Kilbourn Manufacturing Co., New Brunswick, N. J.
Lord & Nagle Co., Boston, Mass.
McConnel & Co., Ltd., Manchester, England.
Merrow Machine Co., Hartford, Conn.
Metropolitan Sewing Machine Co., Nyack, N. Y.
The Meyercord Co., Chicago, Ill.
New Branson Knitting Machine Co., Philadelphia, Pa.
Edwin A. Newton, Philadelphia, Pa.
Nicetown Dye Works, Philadelphia, Pa.
W. G. Nixon & Co., Philadelphia, Pa.
Nonotuck Silk Co., Philadelphia, Pa.
Paxton & O'Neill, Philadelphia, Pa.

Philadelphia Drying Machinery Co., Philadelphia, Pa.
Philadelphia Textile Machinery Co., Philadelphia, Pa.
T. J. Porter & Son, Philadelphia, Pa.
H. M. Remington (Industrial Thrown Silk Co.), Philadelphia, Pa.
Rhode Island Processing Co., Coventry, R. I.
Roessler & Hasslacher Chemical Co., New York, N. Y.
Schaum & Uhlinger, Philadelphia, Pa.
Scholler Bros. Co., Philadelphia, Pa.
Scott & Williams, Inc., Boston, Mass.
J. L. Shoemaker & Co., Philadelphia, Pa.
Smith, Drum & Co., Philadelphia, Pa.
E. O. Spindler, New York, N. Y.
Standard Machine Co., Philadelphia, Pa.
Alfred Suter, New York, N. Y.
Textile Colorist, Philadelphia, Pa.
Tolhurst Machine Works, Troy, N. Y.
Union Special Machine Co., Philadelphia, Pa.
Universal Winding Co., Boston, Mass.
Wildman Manufacturing Co., Norristown, Pa.
Thomas Wolstenholme & Sons Co., Philadelphia, Pa.
O. F. Zurn Co., Philadelphia, Pa.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

DIFFICULTIES OF AN OVERSEER IN A YARN MILL

BY GRANT

A few years ago I got a position as overseer of finishing in a yarn mill. At the time I was hired the agent did not tell me they were having trouble with their skeins, but on the day I began to work the agent came to me in the winding room with a skein in his hand and asked me if I could make skeins similar to that. I looked it over and saw that it was a diamond wind skein. By spreading the selvage I discovered that the threads crossed one on top of the other like a lease in a warp. It was impossible to tangle it. I told the agent I had never made skeins like that, but would try. I was then very busy on the pay roll and production sheet of the previous week which the former overseer had left for me. The second hand did not like the idea of my taking the job out of his hand, as he was promised this work, so he made it hard for me for some time.

The next day the agent came to me with a long letter from the main office which stated that one of their largest customers who had just placed a 20,000-pound order was contemplating cancelling it and importing their yarns. The mill had then about 12,000 pounds of skein yarn already made for these people, and it would be quite a blow to have the order cancelled. When I went to work on the reels I noticed that the first half cop would slip to the center of the skein and then the skein would build right. There was nothing the matter with the gears, which I looked over carefully. I then took a piece of stocking, the only thing I found handy, and cut it in six pieces and tacked one piece on each reel bar for one skein. The result was that the skein was just like the sample the agent had showed me. I took it down to the agent and he asked me how I did it. I told him by covering the reel bars. He then had me order enough cloth for all the bars, and hereafter all our skeins came out perfect. I have recommended this skein to knitting mills and reduced their winding from 5 to 2 cents per pound, and also improved the quality and quantity of their work.

After this job was completed I asked the second hand for the number of yarn on the different spools. This he declined to give me. After some very plain talking I got him cooled down and he was ready to do all he could for me. I then asked him why it was that they were running the sley on the beam warpers on top of the beam instead of underneath, which would make it easier for the warper tender to find the ends and produce more and better work. He told me the overseer whom I had succeeded had spoken of this too, but that the agent was afraid to cut any more holes through the floor as it was then old and full of holes. I went down to the room below and noticed the counter shafts underneath the warpers, so I came to the conclusion that if I opened the counter belts it would be the trick. This I did and had two warpers running the right way before the second hand noticed the change. This helped us in our work a great deal.

STITCH EFFECTS

BY WEBEREI

The utilization of stitch effects in fancy woven goods is almost universal, but it is surprising to find upon examination of many of the fabrics in which stitches are used how

FIG. 1.

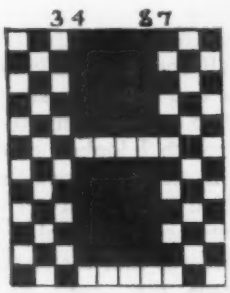
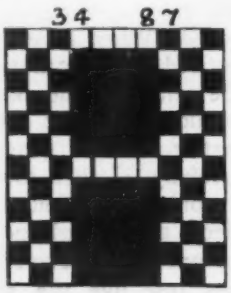


FIG. 2.



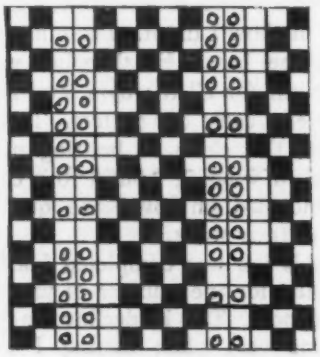


FIG. 4.

badly these effects are designed. One of the commonest defects is shown in Fig. 1 where a 5 and 1 stitch of four threads is woven on a plain ground. It will be noticed that the third and fourth warp threads bind or cut perfectly, while the seventh and eighth do not bind or cut. The correct method of binding is shown in Fig. 2. This defect though but simple, has often bad effects. In many cases the stitching threads are crammed in the reed and unless they are effectively bound they do not come up smartly when the cloth is finished, tending to slip out on one side and thus losing their clear cut character.

The result of this carelessness in designing is effectively illustrated in Fig. 3. In this cloth a mercerized stitch effect was to be outlined by two single black warp threads

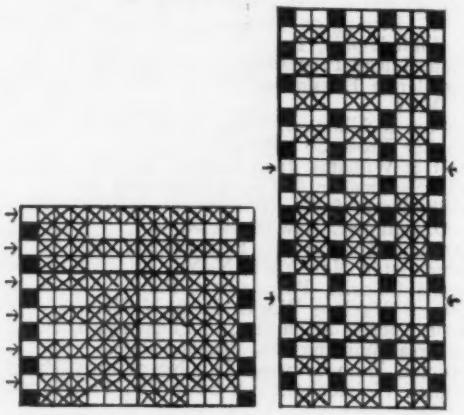


FIG. 6. FIG. 8

one on each side. The weave adopted is shown in Fig. 4, where solid squares indicate the black warp threads weaving plain;

FIG. 9.

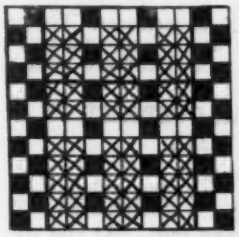
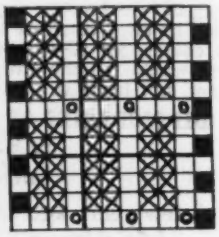


FIG. 10.



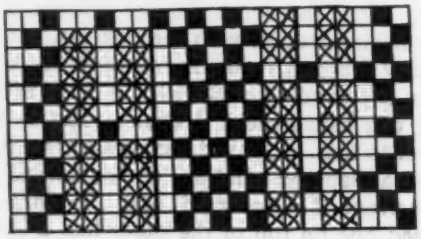


FIG. 11.

the crosses indicate the white mercerized threads making the stitch; and the circles indicate the ground binding threads. Upon examination of the design it will be noticed that the black thread on the right hand side does not bind against the mercerized stitch

threads properly. As a result the cloth when woven was far from being effective; on one side the black thread is prominent, whereas on the other side it even disappears in places. In many cases it is true that in order to obtain the best binding effect the introduction of an extra thread is necessary, but the extra cost entailed is amply repaid by the superior appearance of the finished cloth.

Fig. 5 shows a badly designed effect in which the white and black mercerized stitch threads are not sufficiently crammed or backed up by binding threads. The result is an extremely loose effect which on the back of the cloth has a particularly ragged appearance. This is well shown in Fig. 6, where it will be noticed that the filling on picks Nos. 2, 4, 6, 8, 10 and 12 is floating quite loosely behind the stitch.

A neat stitch effect which is somewhat marred by a filling float which might readily have been prevented is shown in Fig. 7. The design for this stitch is shown in Fig. 8, where it will be seen that the binding of the green stitch threads is attained by threads that weave plain. As a result on picks Nos. 7 and 15 an objectionable float occurs. By weaving the two binding threads to lift on picks Nos. 7 and 15 this defect would have been prevented and the full value of what is an extremely useful style of effect obtained.

A class of stitch that is very useful is shown in Fig. 9, but where a low picked cloth is woven this stitch is liable to form cracks at every repeat of the weave. Fig. 10 is a variation of this weave introducing binding threads that weave opposite to the stitch. By arranging the stitches to weave alternately as shown, the tendency to crack is prevented. An extremely useful form of stitch weave is shown in Fig. 11 and some exceedingly effective fabrics have been produced by a judicious use of this weave. Fig. 12 is a good example of the effect obtained.

FIG. 3.

FIG. 5.

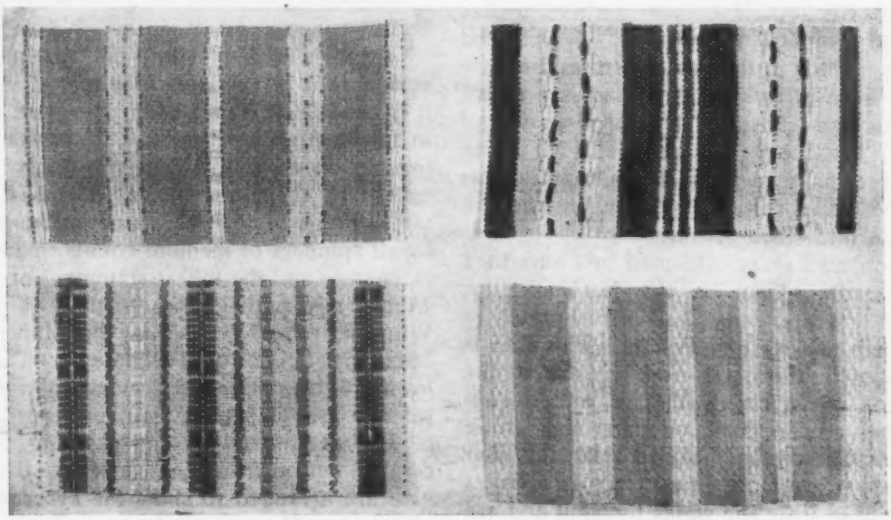


FIG. 3. FIG. 12.

The wool clip of the United States is approximately 300,000,000 pounds, of which nearly 200,000,000 pounds are grown in the West. The amount of wool imported is about 250,000,000 annually, so that the total consumption, when trade is good, is between five and six hundred million pounds.—From The Sheep Industry in Canada, Great Britain and United States.

A JUTE SUBSTITUTE FROM CHINA

BY LOCK HAVEN

Among the comparatively recent additions to our commercial imports is a fiber known in the trade as "jute." It is not jute at all, but it is obtained from a plant known botanically as Abutilon avicennae Gaertn., a member of the mallow family (Malvaceae), which among the many natural families of plants, contributes so largely to the wants and necessities of men. The Chinese call this fiber "chingma," which means light-green hemp. The plant which yields this fiber is a common weed in this country, where it has escaped and now grows wild. It is called Indian mallow in the eastern states, because it has been introduced here and is a native of India and China. The plant is worthy of notice, because of its capability of being turned to many useful purposes, especially as the fiber has a soft and cottony feel and can be spun into strong twine.

Indian mallow is cultivated in China to a considerable extent in the Pei-ho valley, along the grand canal, and in the region to the north and west of Peking. The fiber is contained in the outer rind or bark of the stalk, as is the case with flax, and is submitted to a process analogous to the retting of flax. The methods of preparing the fiber for market are most primitive. The leaves are stripped from the stalks by hand and are used for a number of purposes. The stalks, which are first bound into bundles, are submerged in water, generally in a stagnant pool, and mud from the bottom is piled over them to keep them covered. It is allowed to remain there for 10 or 12 days, during which it is very carefully watched in order to see that it is properly submerged and the stems are not unduly rotted. After time has elapsed to allow the vegetable gum which holds the fibers together to decay, the stalks are stripped of their fiber by the latter being drawn by hand over the teeth of a rude iron comb fixed to a heavy plank. This combing is all the preparation it gets. It is then made up into bundles for market. The inner stalks, which are very white, are used as fuel.

Considerable quantities of this fiber have lately been exported to Great Britain and the United States where its use is constantly increasing. It is believed that it will attract the attention of a good many textile manufacturers in this country. The exports of this fiber from Tientsin during 1908, the figures being the latest available, amounted to 5,358,543 pounds, against 1,200,300 pounds in 1907 and 1,384,602 pounds in 1906. The shipments in 1908 amounted to 4,653,210 pounds to Chinese ports, and directly to foreign countries 705,333 pounds, chiefly to the United States and to Great Britain.

ENGLISH COSTS IN COTTON SPINNING

A correspondent, who asks for a statement of the cost of 2-ply 20s, 30s, 40s and 50s cotton yarn in England, fails to say whether it is twist or weft that he is interested in and in so closely competitive a business as is the production of cotton yarn the finest differences have their importance. There is a certain average of cost maintained more or less by all spinners of medium counts upon mule machinery and the fullest statement of which I have any acquaintance is that by James Winterbottom, Lecturer in the Manchester Municipal School of Technology. The following figures, given in decimals of a penny, refer to the Oldham or Southeastern district of Lancashire and to the spinning of uncombed cotton from single roving. The figures are arranged to show the average cost of certain mill expenses in terms of pence per spindle per annum:

Pence per Spindle per Annum	
Banding, twine, rope	.5
Freight on cotton and other material	2.3
Coal	3.75
Paper	.15
Cleaning cloths, engine packing, brushes	.25
Leather and cloth for rollers	.5
Belting and its accessories	.25
Lubricants	.9
Repairs to mill buildings, machinery and upkeep 1½% upon spindles at $5.76 p. a.	4.32
Gas and water	1
Rates and taxes	2
Stationery, telegrams, exchange subscription-railway tickets, stamps, printing and sundry office expenses	1
Sundry stores	.5
Insurance	.45
Interest 5% at $6 per spindle	15
Depreciation 4% at $5.76 per spindle	11.52
Wages	36
Total ($1.6078)	80.39

The net outcome of the statement is a cost of 80.64 pence (roughly $1.6128) per spindle per annum upon average counts and of this cost 45 per cent. is attributable to labor.

Mr. Winterbottom in his "Cotton-spinning Calculations" applies this average cost to the ascertained cost of the raw material at the card delivery, deducting the sum received per pound of spun yarn to represent the item of waste. Any waste accruing beyond the stage of the card delivery is ignored, being treated as offset by the regain in conditioning. The value of waste is reckoned at 2 1/2 per cent. of the raw cotton.

In the case of a 28s twist, made from middling American costing 6d. (12c.) per pound the calculation is as follows:

Working Cost per Spindle at Pence 80.39 p. a.		
Production per spindle p. a. 50 weeks and 32 hanks (32 × 50 ÷ 28)		1.413
Cost of cotton at card delivery		6.67
		8.083
Loss waste	.15	
Loss cost raw cotton	6	6.15
Net cost of spinning, d. per lb.		1.933

Costs of selling and discount to be added.

Proceeding in the same manner the cost of 36s twist from fine middling American at 6.16d. (12.32c.) produced at the rate of 30 hanks per week, is reckoned at a net cost of 2.465d. per pound.

Again 60s twist out of Fair Br. Egyptian at 9d. (18c.) is calculated at a net cost singlefold of 4.807d. per pound.

The table following gives the approximate average of the Oldham district, still upon the basis of 80.64d. per spindle p. a. (otherwise 1.61d. per spindle per week):

	Hanks per 55½ Hours	Price of Cotton	Waste to Cards %	Cost cotton card delivery	Waste	Working Expenses per Sp'dl.	Finish Cost Yarn	Margin between Cotton and Yarn
20° Twist, C. Am.	34	5.86	11	6.58	.147	.95	7.373	1.523d
20° Weft, G. O. Am.	34	5.71	12	6.48	.142	.95	7.288	1.578d
30° Twist, C. M.	32	6.05	11	6.8	.157	1.15	7.799	1.749d
30° Weft, S. L. M.	32	5.95	11	6.68	.149	1.15	7.681	1.731d
40° Twist, G. Am.	28.5	6.31	10	7	.150	2.26	9.102	2.792d
50° Twist, M. F.	26	6.55	10	7.28	.164	3.1	10.216	3.666d

When double roving is spun to 50s twist at the rate of 25.5 hanks per week the net cost of spinning is put at 3.37d. per pound.

The particulars all refer to mule spinning, which in England is in general adoption except for a certain number of ring-spun singles for warps. The same is the case with the departmental costs given by Mr. Winterbottom, in which floor-space is reckoned at a value of 48c. per square yard per annum and no allowance is made for waste:

Mixing, Cotton and Waste Storage, Opening and Scutching

Labor	d.	.027
Power		.0255
Machinery		.0144
Space		.00317
Per lb. of yarn spun		.07007

Carding

Labor	d.	35
Power		18.7
Machinery		49
Space		5.18
Per card per week		107.88

Drawing

Labor	d.	12.5
Power		3.75
Machinery		16
Space		.76
Per delivery per week		33.01

	Slubber	Intermediate	Roving	Mule	Ring Spinning	Twin'g (mule) Doubl'g
Labor	3.25	1.75	.88	.45	.25	.66
Power	.415	.31	2.68	.156	.235	.113
Machinery	.87	.575	.4	.15	.216	.12
Space	.195	.1	.067	.075	.029	.067
d per spindle per warp	4.730	2.735	1.615	.831	.730	.960

The costs of ring doubling are given by Mr. Winterbottom as:

Labor	d.	.5
Power		.312
Machinery		.25
Space		.044
Per spindle per week		1.106

For other expenses connected with doubling such as waste, travellers, grease, banding and bobbins, 25d. is noted as a reasonable allowance. The production of singles is one business and the doubling of them is in many

cases another, conducted by different parties in different mills. Cotton doublers buy yarn when the market is favorable, convert it into two-fold and sell it again and are able not infrequently to undersell the producing spinners and doubler by dint of their contracts. In some instances they double yarn from one mill with yarn from another and they cater for specialty trades such as the lace business. Also there is a certain amount of doubling done upon commission by persons who take no responsibility for waste. The prices of such a one for doubling ordinary warp yarns with no excessive number of turns per inch, are given below:

Commission doubling	20s	30s	40s	50s
Pence per lb.	1⅛	1¼	1⅝	1⅞

Out of these prices the doubler makes his profit and pays carriage in one direction upon the yarn sent to him for treatment. Putting the prices of spinning from Winterbottom's tables together with these of the commission doubler, the result is in rough terms as follows:

	20s	30s	40s	50s
Spinning	1½	1¾	2¾	3⅜
Doubling	1⅛	1¼	1⅝	1⅞
Pence per lb.	2⅝	3	4⅜	5¼

While only a loose degree of accuracy can be claimed for the figures it is improbable that their effect can be seriously misleading. Market movements and the fluctuating demand for two-fold as against single yarns disqualify market quotations for the one or the other as an exact guide to the cost of converting singles, but on one day selected at haphazard 20s single twist cops were approximately one penny cheaper than two-fold, 32s were 1 1/8d. cheaper, 40s about 3/4 penny cheaper and 50s one penny cheaper. These were open market quotations for market articles; not for the self-same yarn. As it is manifestly impossible to double a fine yarn more cheaply than a coarse one the figures illustrate principally the difficulty of deceiving information from such sources.

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The present cotton growing region of the United States is about 1,450 miles long and about 500 miles wide, containing approximately 700,000 square miles.

THE EFFECT OF MOISTURE ON THE STRENGTH AND ELONGATION OF YARNS AND FABRICS

By Prof. Aldred F. Barker, F. W. Barbrich and F. Pickles

(Continued from February.)

Before testing for strength, the patterns were divided and the amount of moisture in one portion was estimated immediately, the other portion being simultaneously tested for strength. A sufficient number of tests were carried out to furnish data for the strengths of a wide range of patterns containing percentages of moisture ranging from those "absolutely dry" to those saturated with moisture. The results of the tests for strength and elongation of these patterns have been plotted out in the form of curves, the strength, or elongation, being plotted as ordinates, and the percentages of moisture as abscissae. The data thus obtained indicates at a glance the variation of strength, or elongation, with the moisture.

ATMOSPHERIC MOISTURE AND TEMPERATURE

In view of the fact that such marked variation in the strength and elongation of fabrics are to be attributed to the amount of moisture present in them, it would seem at least advisable, if not extremely necessary, that some standard conditions of humidity and temperature, in which fabrics are tested, should be fixed upon and recognized; since, where this is not the case, much unnecessary trouble and expense may be involved. A short time ago, a Government contract was rejected on account of the fabrics, when tested for strength at the Government stores, being below the specified strength. The manufacturers tested representative samples of the consignment before delivery, in the presence of a Government agent, who passed the whole of the goods as being up to the required strength. On their arrival at headquarters, however, further tests were made, and on account of an alleged deficiency in strength, the whole of the consignment was rejected. On careful consideration of the case, the manufacturers discovered that they had been inadvertently testing their patterns under abnormal conditions of temperature and humidity, so that a fictitious strength and elongation were recorded.

The suggestion that all cloths should be tested in an absolutely dry condition is not practicable, as the results obtained would not indicate the actual strength and elongation of the cloth under normal conditions of wear. A wool cloth, tested under these conditions, would appear to be considerably stronger and less elastic than if it were tested under normal conditions, whereas a cotton cloth would be recorded as being both weaker and less elastic. Apart from this, it is difficult to test a cloth in an absolutely dry state, since, when removed from the drying oven, it would immediately commence to absorb moisture, and by the time the pattern was fixed in the machine, and ready to test, it would have absorbed a considerable proportion of its natural moisture.

If fabrics are tested without the temperature and humidity of the atmosphere being taken into account, unreliable results will again be obtained, owing to the atmospheric conditions not remaining constant, but changing from day to day, and from season to season. It is therefore evident that all tests should be carried out under certain specified conditions as to temperature and relative humidity, so that the actual percentage of moisture in the fabric at the time of testing may be readily calculated, and on reference to the accompanying graphic illustrations, any necessary allowance may be made for excess or deficiency in moisture, or, the strength of the fabric under other conditions of temperature or humidity may be ascertained from the curves which have been plotted out. The term "relative humidity" means the relation in percentage of the amount of moisture in the air at a certain time, as compared with the amount of moisture that the air would contain at "dew-point" that is, if it were perfectly saturated, and if additional moisture were put into the air, it would become condensed or precipitated. Fifty per cent. of relative humidity therefore indicates not a constant amount of moisture in air at any temperature, but 50 per cent. of the maximum amount of moisture which could be held in suspension in air at a certain temperature. The term "absolute humidity" refers to the actual amount of moisture present in air, without having any regard to temperature.

Regarding the correct amount of humidity, and the most suitable temperature of the atmosphere for testing the strength and elongation of fabrics, about 65 per cent. of relative humidity with a temperature of 17° C. are found to be the most advantageous conditions.

In testing a fabric, the strength and elongation under these conditions of temperature and humidity should first be ascertained, then a portion of the fabric may be treated for half an hour with a solution of Marseilles soap (5 parts soap to 995 parts of water) at 176° F. and the shrinkage in length and width, and the loss in weight noted. A further series of tests for strength and elongation should then be carried out on the scoured fabric, under the same conditions of temperature and humidity. In this way, any difference in strength due to the presence of filling materials, or other substance present in the fabric, may be determined.

The necessary conditions of temperature and humidity for testing are best obtained by having a heating apparatus and humidifier installed in the testing laboratory, so that the temperature and humidity may be readily adjusted. A hygrometer, or wet and dry bulb thermometer, is employed in order to ascertain the "relative humidity," which may be readily calculated from the readings on the two thermometer scales.

Figs. 1 and 2 illustrate graphically the results obtained on testing the strength and elongation of a "botany" cloth with varying percentages of moisture. The cloth was tested in the grey, and also after dyeing. It will be seen that, on dyeing, there is a slight depreciation in strength of both the warp and weft, except at the point where the normal amount of moisture is present in the material. About this point, the dyed fabric is actually stronger than that in the grey state. At other points in the curve, a slight, but uniform depreciation in strength is noticed, the curves representing the dyed warp and weft being practically parallel with those representing the material in the grey.

One interesting feature revealed by these

graphic illustrations is the marked increase in the elastic nature of the wool, brought about by the very slight increase, 1.75 per cent., above the normal amount of moisture present in the material.

The cotton cloth was tested at three stages: 1, in the grey; 2, bleached; and 3, dyed black. Figs. 3 and 4 illustrate the results obtained. A considerable depreciation is noticed in the strength of the fabric when bleached, whereas on dyeing, a marked increase in strength is observed. It will be noticed that the greatest increase in strength is obtained between the points when the fab-

FIG.1 STRENGTH OF WARP + WEFT.

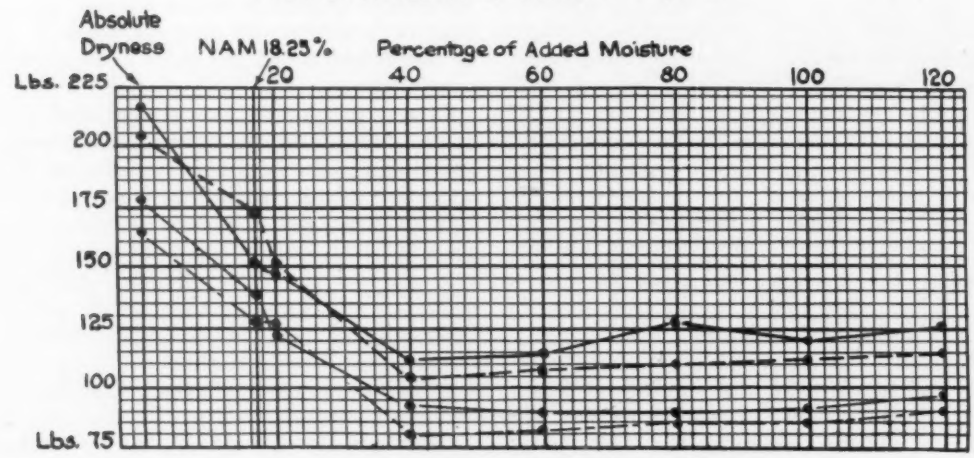
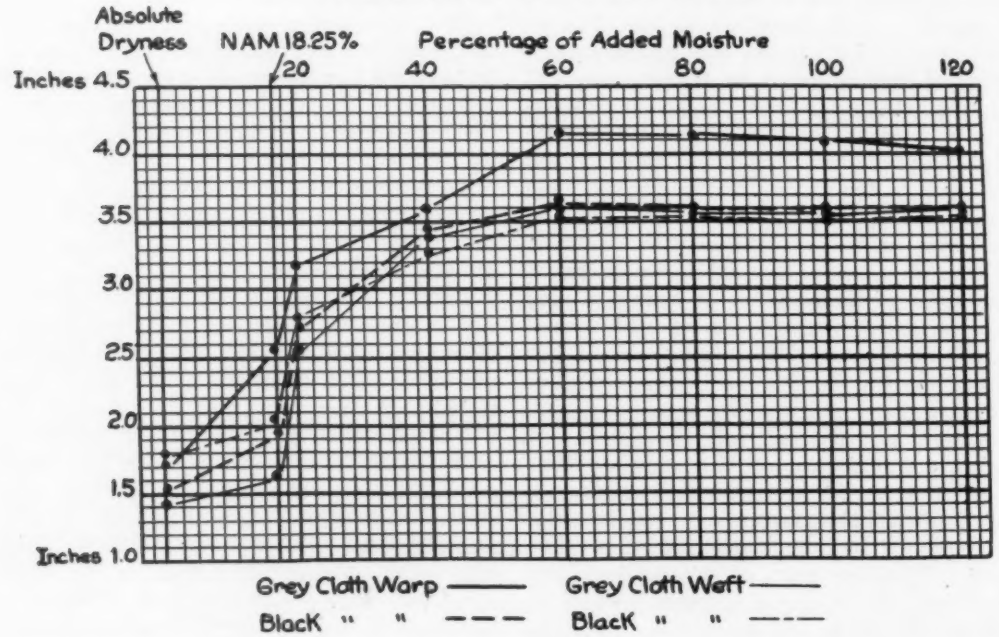


FIG.2. ELONGATION OF WARP+WEFT



ric is in an absolutely dry condition and when 20 per cent. of moisture has been added. Beyond this point, there is little or no difference recorded.

The elongation of the material at breaking point is not abnormally affected by the addition of moisture beyond 20 per cent., although up to this point, a considerable increase is obtained

Figs. 5 and 6 represent the variation in

FIG.3. STRENGTH OF WARP+WEFT

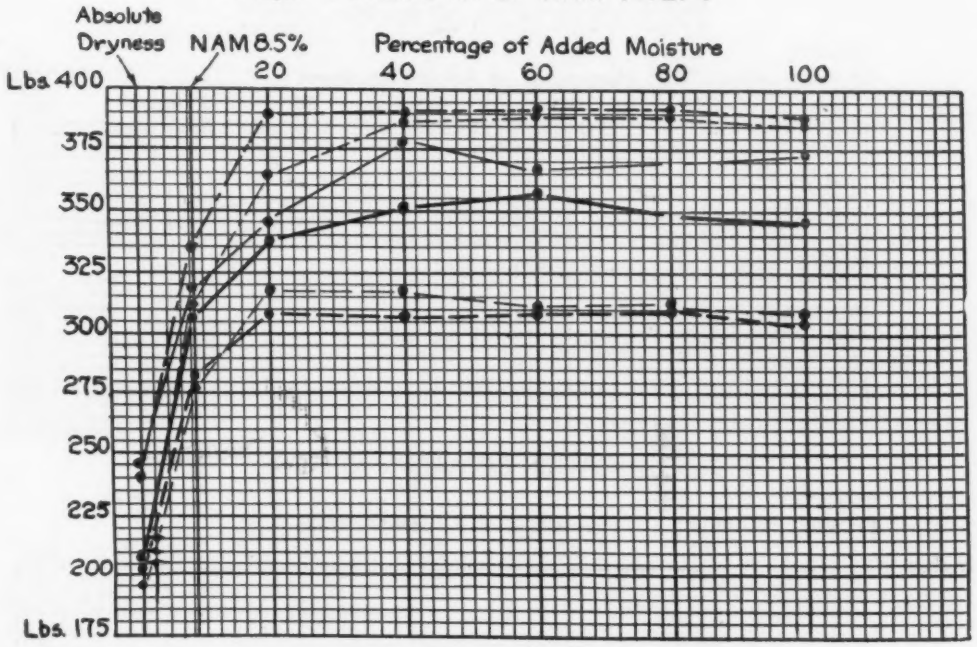
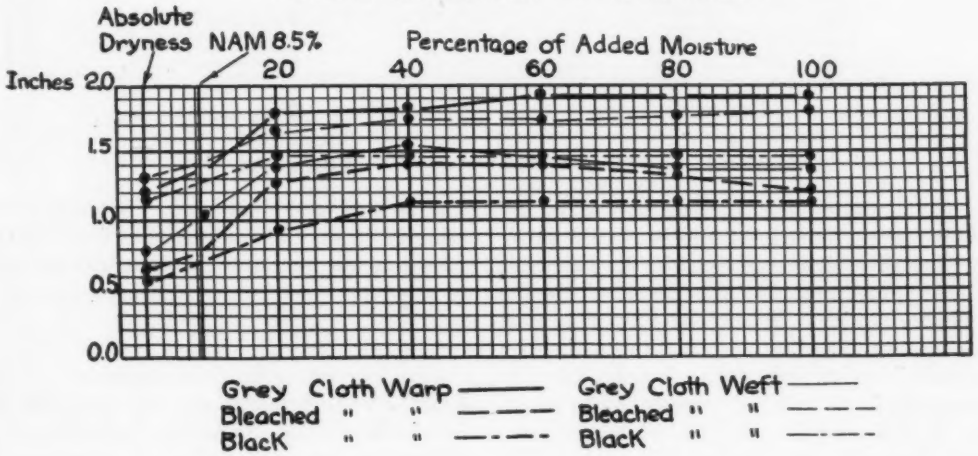


FIG.4 ELONGATION OF WARP+WEFT



strength and elongation of the "Alaska" or mixed fabric. It is interesting to note in this case, that the differences recorded in Figs. 1 and 2, and Figs. 3 and 4 are, to some extent, neutralized. It has been shown that, to a certain extent, the strength of the botany cloth varies in inverse proportion to the amount of moisture present in the material; whereas, in the case of the cotton cloth, the reverse obtains. When the two materials are tested together, as instanced in the "Alaska" or mixed cloth, the decrease in strength of the botany is practically balanced by the increase in strength of the cotton; and, although some variation in strength is obtained between patterns tested in a state of "absolute dryness" and those containing 20 per cent. of moisture, there is but little change. The elongation of the "Alaska" cloth follows closely on that of the cotton cloth.

In Figs. 7 and 8, the results indicated by the previous graphic illustrations are shown as percentages of increase, or decrease, in the strength and elongation. The fabric containing the normal amount of moisture being taken as the standard, and represented by 100.

FIG.5. STRENGTH OF WARP + WEFT

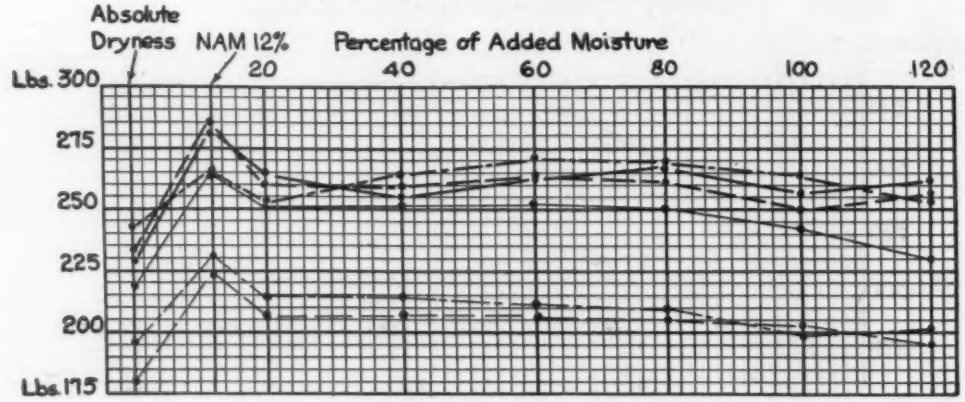
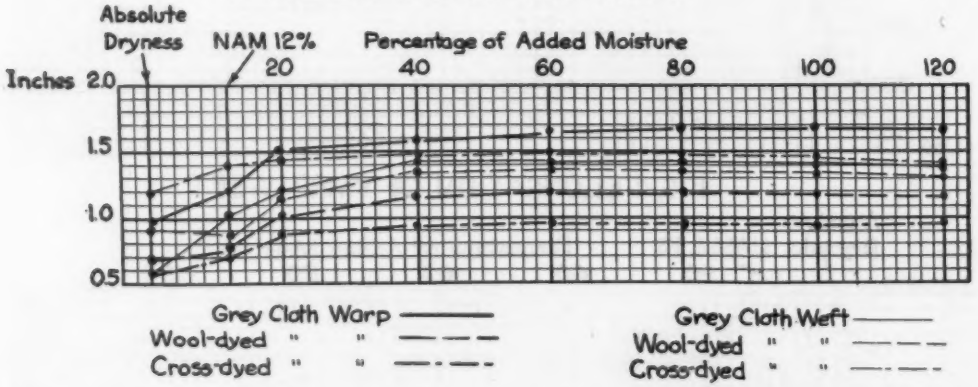


FIG.6. ELONGATION OF WARP + WEFT



(To be continued.)

The women and girls employed in the manufacture of underwear and waists in the Basel district of Switzerland work 10 to 10 1/2 hours a day and earn, according to their experience and capacity, 50 cents to $1, the latter sum being paid only to a few persons of exceptional skill capable of directing the business.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

CORE YARN

BY ROBERT DANTZER

[Translated from the French by the Editor of the Textile World Record.]

Core yarn is made with a central thread around which is wrapped a covering, which usually consists of more expensive textile fibers. The yarn has the appearance of being made entirely of the material which is on

FIG. 2.

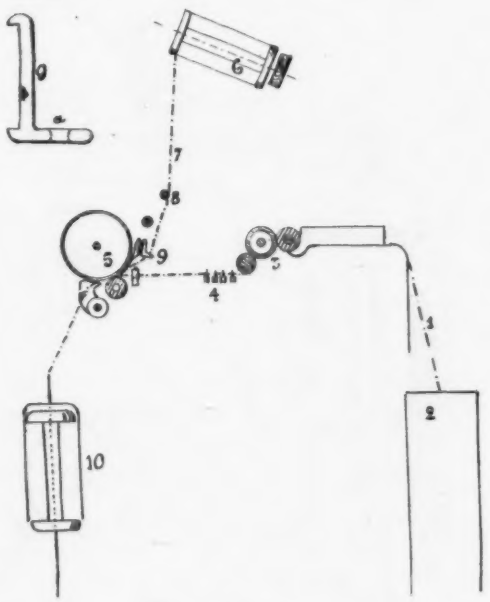


FIG. 1.

the outside. The difference between core yarn and twisted ply yarn is easily detected. The last named yarn consists of separate threads twisted together each of which is usually visible when the yarn is examined. In core yarn, on the other hand, the central thread is concealed. The earliest method of manufacturing core yarn is that patented by Urgoiti in 1905. The Urgoiti core yarn consists of a core of paper around which is wrapped a covering of jute, flax, hemp, tow or other vegetable material. In his patent specifications Urgoiti also made claim for a yarn with a paper core and a covering of combed or carded wool.

Fig. 1 shows one of the devices used by Urgoiti and adapted for a jute, hemp or flax

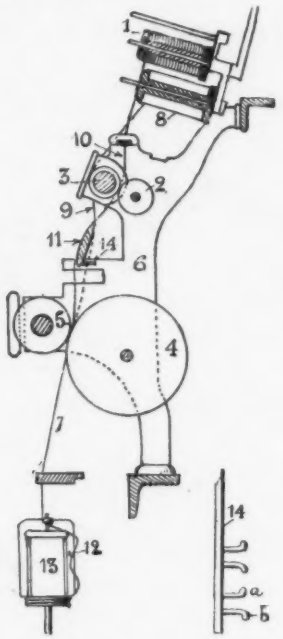


FIG. 3. FIG. 4.

spinning frame. The thread, 1, is drawn from the can, 2, passes between the feed rolls, 3, then through the pins, 4, and next between the delivery rolls, 5, thus being drawn finer by the ordinary process. The paper yarn which is to serve as the core is drawn from the spool, 6, it being a finished thread having the usual twist in it. The paper thread, 7, passes over the rod, 8, which gives it a slight tension. It then passes through a hole in the yarn guide, 9, and then between the delivery rolls, 5, where it unites with the other material and is twisted in the ordinary manner. This converts the two materials into the core yarn, the paper being in the center and the other material

on the outside. It is finally wound on the bobbin, 10. Fig. 2 shows the yarn guide on a larger scale. There are two small holes in the guide similar to the hole, A, and the paper yarn is passed through either one or the other, according to the direction of the twist. Fig. 3 shows the Urgoiti system ap-

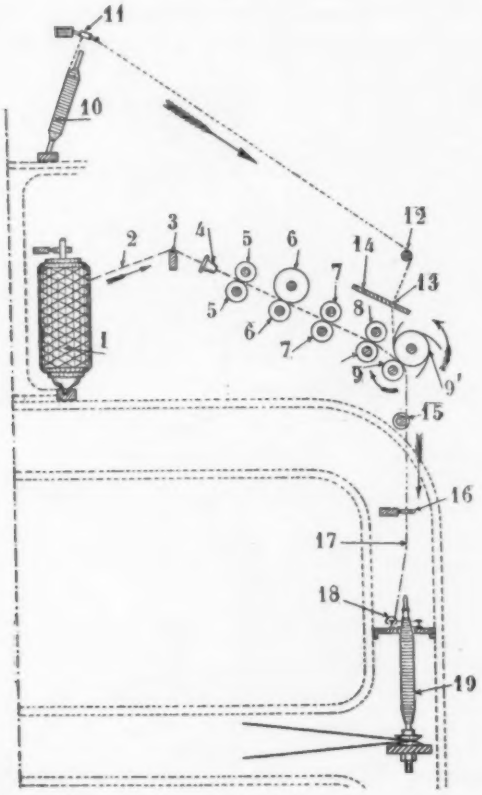


FIG. 5.

plied to a jute spinning frame. The roving is drawn from the spool, 1, and passes between the feed rolls, 2 and 3, then over a rod, 11, and finally between the delivery rolls, 4 and 5. The paper in the form of a narrow flat band is wound on the bobbin, 8. As has already been stated the roving, 10, passes between the delivery rolls, 2 and 3, while the paper band passes over the roll so as not to be subjected to the drawing process. The paper then passes under the bar, 11, to the delivery rolls, 4 and 5. The finished thread, 7, is twisted and wound on the bobbin, 12 and 13. The twist causes the paper to form the core of the yarn while the other material surrounds it. Fig. 4 shows the yarn guide, 14, which guides the paper to the delivery rolls.

The process patented by Courinie and Guiband in 1908 provides for the use of a

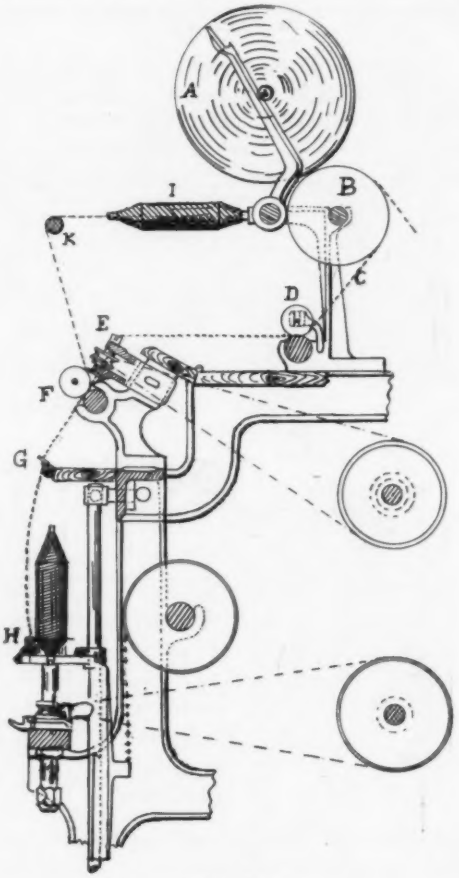


FIG. 6.

core of cotton, silk or other material. The patent was confined to the principle of the yarn and did not cover the process of producing it. Leclercq-Dupire Co. in 1910 obtained a patent for a process of manufacturing core yarn, the apparatus being illustrated at Fig. 5. The yarn has a cotton core, the covering being worsted. The result is a considerable saving in the cost of material as the proportion of cotton by weight can be made as high as 70 per cent. The yarn can

be made either on a ring frame or mule, the frame for this purpose being shown at Fig. 5. The worsted roving, 2, is drawn from the bobbin, 1, passes through the guide, 3, and then through a revolving tube, 4, which imparts false twist. It then passes between the drawing rolls, 5, 6, 7 and 8, finally between the delivery rolls, 9, the latter being slightly lower than the former. A cotton thread of suitable size passes from the bobbin, 10, through the guide, 11, over the bar, 12, then through a small hole, 13, in the plate, 14. It then passes down between the delivery rolls, 9, and is incorporated with the worsted forming the core of the yarn. The core yarn passes over the guide, 15, through the hole, 16, and is finally wound on the bobbin, 19, after having been twisted by the usual process. The cotton core is not subjected to any drawing process, but is incorporated with the other material when the yarn is twisted. This accounts for the cotton's not being visible, the yarn having the appearance of worsted. The twist in the core yarn can be either to the right or left regardless of the twist in the cotton. The process can be adapted for the mule as well as for the ring frame. Fig. 6 shows the machine for making core yarn with a carded wool covering. The spool, A, from the finisher card is driven by the drum, B, and delivers the carded wool roping, C, to the rollers, D, from which it passes through to the revolving tube, E, which imparts the false twist. It then passes to the delivery rolls, F. The cotton core yarn passes from the bobbin, I, over the rod, K, to the delivery rolls, F. The cotton and wool strands are united into one thread by the twist and pass from the delivery rolls through the guide, G, to the bobbin, H. The cotton thread forming the core is covered by the carded wool.

Owing to the shortness of the fibers of carded wool the covering is not as firm as in the case of worsted and it is, therefore, necessary to pass the yarn through a condensing process to give additional strength to the covering. Fig. 7 shows the condensing apparatus used for this purpose. It was invented by Vouillon in 1859 and improved by Monchablon in 1882. The core yarn is delivered from the spool, C, which is driven by the rollers, D. The yarn passes through a guide, I, and then between an endless apron, A, and a condensing roller, B. The latter is heated by steam. It revolves on a shaft and is also vibrated endways. The endless apron, A, is also vibrated in the same direction. It consists of a flexible band covered with cloth and held in position by the wood rolls, as shown in the illustration. The condensing surface can be adjusted by moving these rollers. A jet of steam is blown on the apron which is also moistened slightly by a soap solution placed in the tank, R, and delivered to the apron by the wood roller, M, which is covered with cloth. This roller is pressed against the apron by adjust-

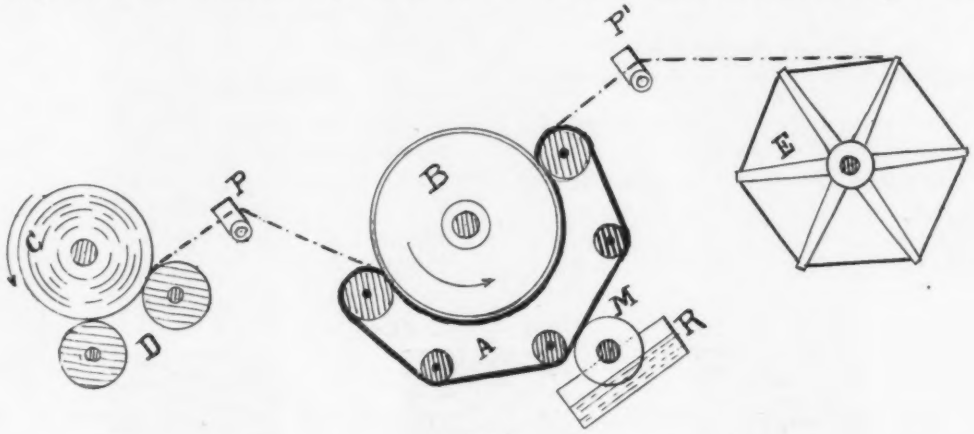


FIG. 7.

able weights. The thread after passing through the condenser is carried through the guide, P^1, to the reel, E. The steaming and moistening of the apron keeps the yarn soft and facilitates the condensing process. The condensing operation results in lengthening the yarn slightly so that the reel is speeded about 10 per cent. faster than the yarn is delivered to the condenser. The yarn which accompanies the inquiry is made with a cotton core covered with carded wool and has been slightly condensed.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

Two filling corkscrews are shown at Figs. 479 and 480. At Fig. 481 is shown a filling corkscrew in which the twill is run alternately to right and left, to give an undulating effect suitable for stripes in worsted goods.

FIG. 479. FIG. 480. FIG. 481.

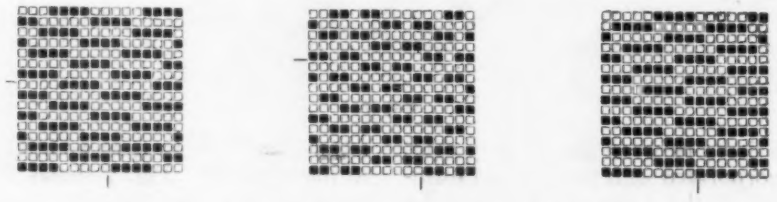


FIG. 482. FIG. 483. FIG. 484

Corkscrews, particularly the warp variety, are frequently arranged to produce fancy effects, of which a few examples are given at Figs. 482 to 509.

Fig. 482, 12 warp 8 filling.
Fig. 483, 12 warp 8 filling.
Fig. 484, 16 warp 16 filling.
Fig. 485, 16 warp 48 filling.
Fig. 486, 19 warp 57 filling.
Fig. 487, 13 warp 52 filling.
Fig. 488, 24 warp 24 filling.
Fig. 489, 18 warp 24 filling.
Fig. 490, 24 warp 24 filling.
Fig. 491, 21 warp 14 filling.
Fig. 492, 8 warp 8 filling.
Fig. 493, 16 warp 8 filling.
Fig. 494, 18 warp 9 filling.
Fig. 495, 12 warp 12 filling.
Fig. 496, 18 warp 9 filling.
Fig. 497, 16 warp 8 filling.
Fig. 498, 22 warp 20 filling.
Fig. 499, 18 warp 18 filling.
Fig. 500, 42 warp 7 filling.
Fig. 501, 20 warp 20 filling.
Fig. 502, 18 warp 9 filling.
Fig. 503, 12 warp 6 filling.
Fig. 504, 32 warp 24 filling.
Fig. 505, 23 warp 69 filling.
Fig. 506, 20 warp 70 filling.
Fig. 507, 20 warp 20 filling.
Fig. 508, 24 warp 24 filling.
Fig. 509, 26 warp 10 filling.

DOVETAIL WEAVES

The uses of dovetail weaves may be summarized as follows:

1. To obtain wide diagonals with a small number of shafts.

2. To produce new weave designs.

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3. To obtain a weave in which a ground weave is brought on alternate picks and the pattern is developed on the other picks, Fig. 519.

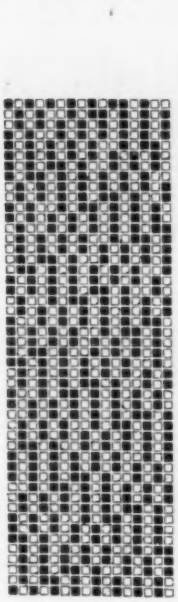


FIG. 485

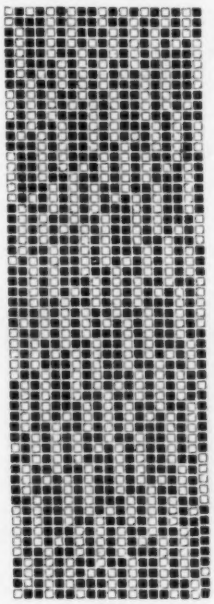


FIG. 486.

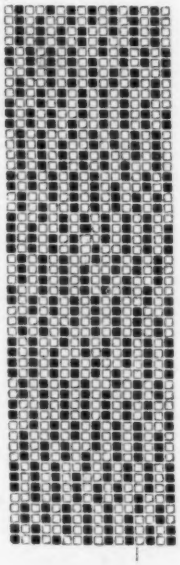


FIG. 487.

obtained by dovetailing weaves in warp and filling. Like the kaleidoscope a change of position results in an entirely new effect.

Additional examples are shown at Figs. 510 to 520, in each of which a weave is dovetailed with itself.

FIG. 488.

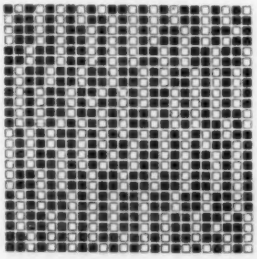


FIG. 489.

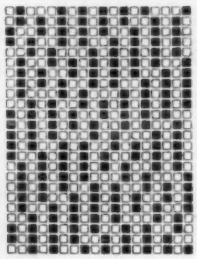
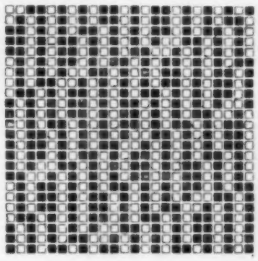


FIG. 490.



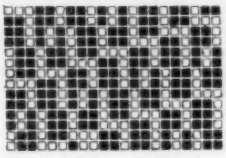


FIG. 491.

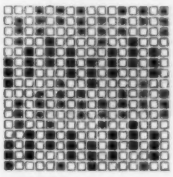


FIG. 492.

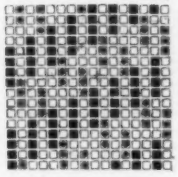


FIG. 493.

4. To increase the filling absorbing capacity of the weave, Figs. 510 and 511. An unlimited number of new patterns can be

Fig. 510, 9-shaft.

Fig. 511, 11-shaft.
Fig. 512, 9-shaft.

Fig. 516, 24 warp 12 filling.
Fig. 517, 16 warp 8 filling.

FIG. 494.

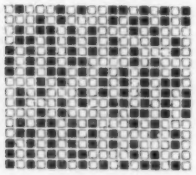


FIG. 495.

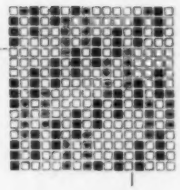
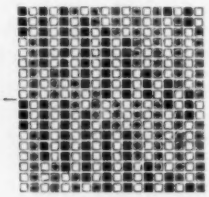


FIG 496.



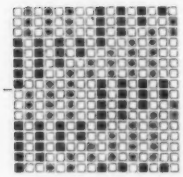


FIG. 497.

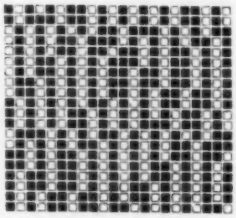


FIG. 498.

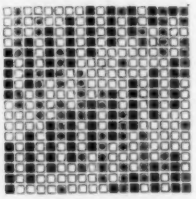


FIG. 499

FIG. 500.

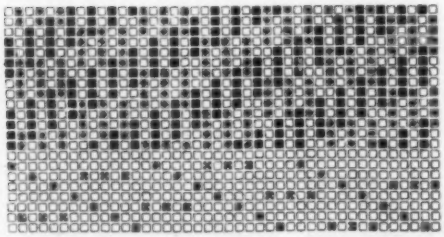
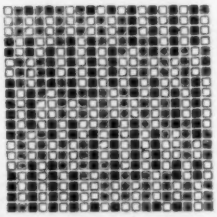


FIG 501.



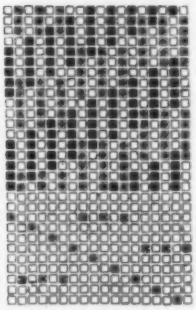


FIG 502.

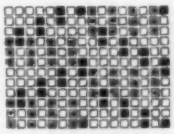


FIG. 503.

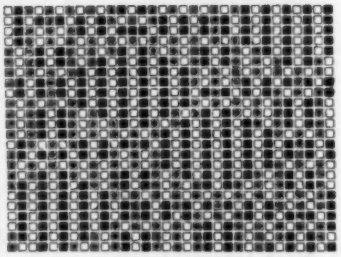


FIG. 504.

Fig. 513, 9-shaft.
Fig. 514, 21-shaft.
Fig. 515, 12-shaft.

Fig. 518, 26 warp 13 filling.
Fig. 519, 24 warp 48 filling.
Fig. 520, 48 warp 24 filling, 24 shafts.

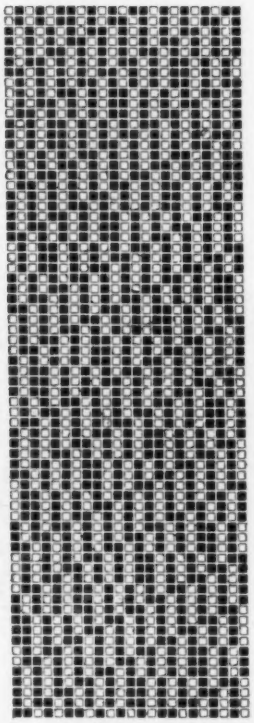


FIG. 505.

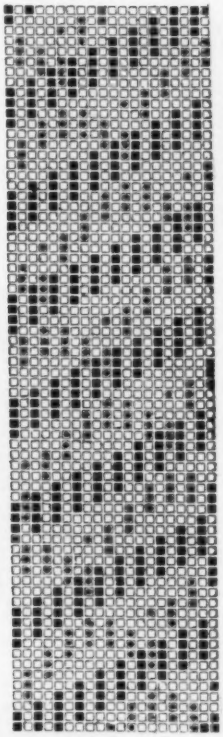


FIG. 506.

FIG. 510.

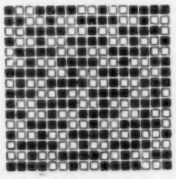


FIG. 511.

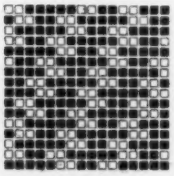
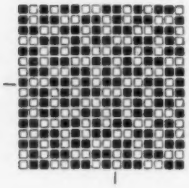


FIG. 512.



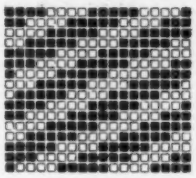


FIG. 513.

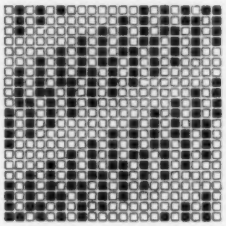


FIG. 514.

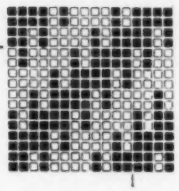


FIG. 515.

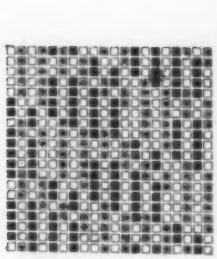


FIG. 507.

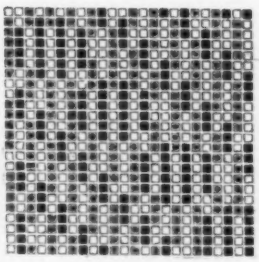


FIG. 508.

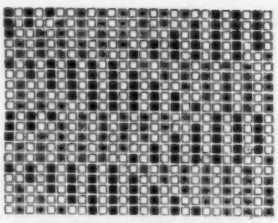


FIG. 509.

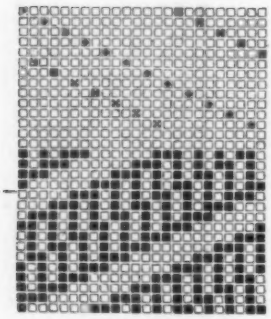


FIG. 516.

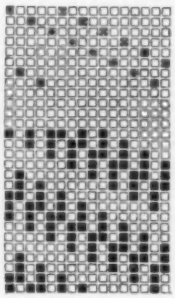


FIG. 517.

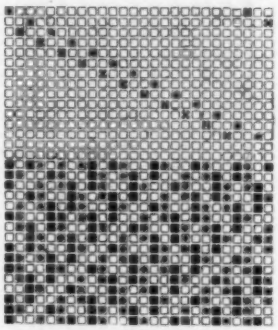


FIG. 518.

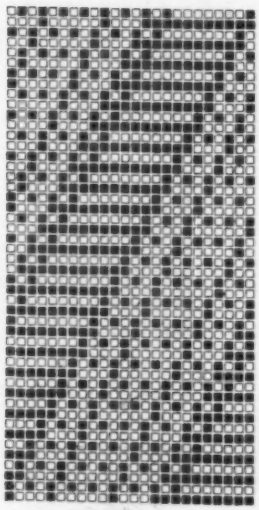


FIG. 519.

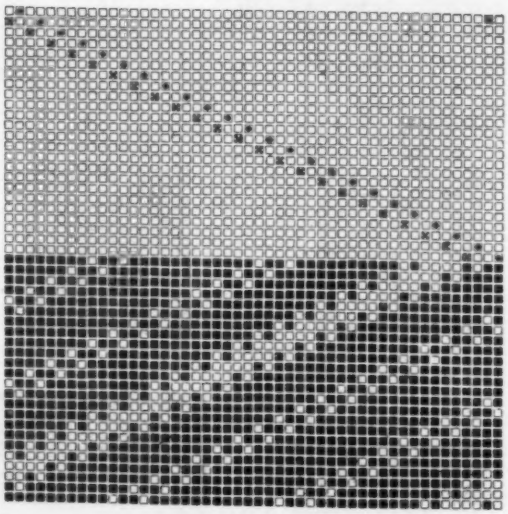


FIG. 520.

Figs. 521 to 539 show dovetail weaves each obtained from two weaves, the threads being taken alternately from each.

Fig. 521, twill $\frac{4}{1}\frac{1}{2}\frac{1}{3}$, twill $\frac{4}{3}\frac{1}{1}\frac{1}{2}$.

Fig. 522, twill $\frac{5}{2}\frac{5}{4}$, twill

FIG. 521.

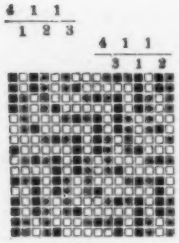


FIG. 522.

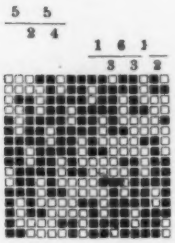
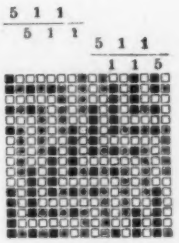


FIG 523.



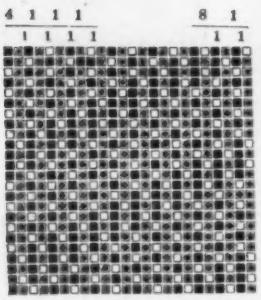


FIG. 524.

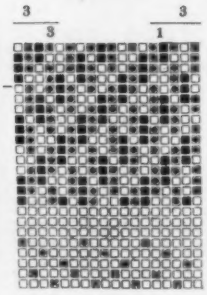


FIG. 525.

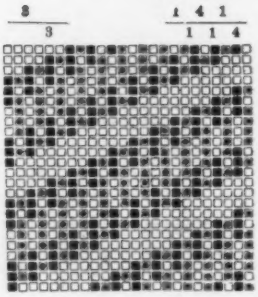


FIG. 526.

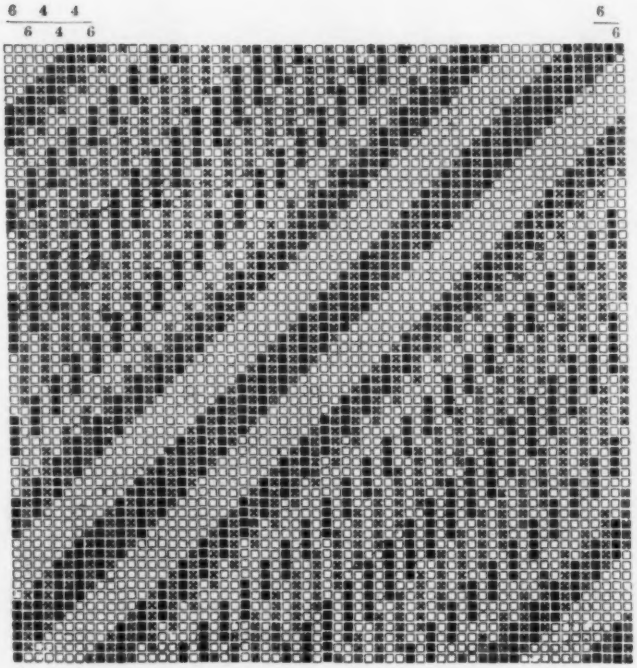


FIG. 538.

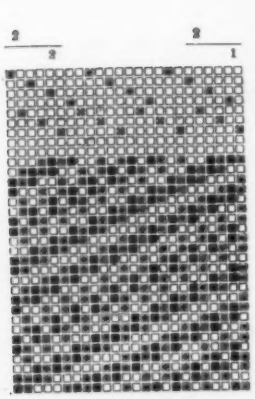


FIG. 527.

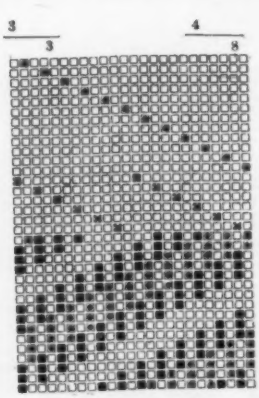


FIG. 528.

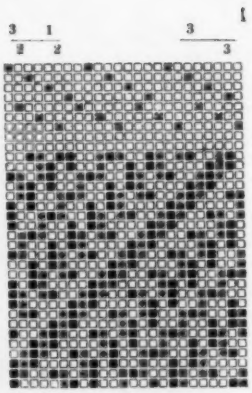


FIG. 529.

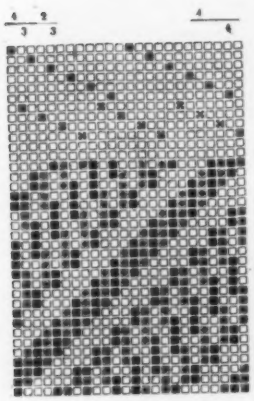


FIG. 530.

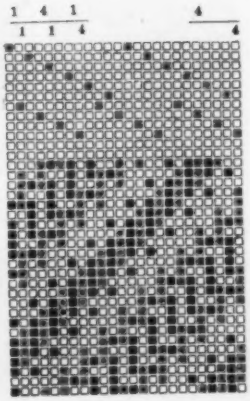


FIG. 531.

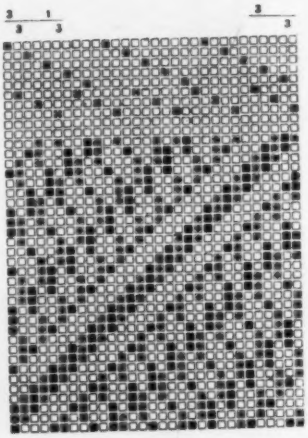


FIG. 532.

$^{1}\!-\!_{2}\!-\!^{6}\!-\!_{3}\!-\!^{1}\!-\!_{2}$.

Fig. 523, twill $^{5}\!-\!_{5}\!-\!^{1}\!-\!_{1}\!-\!^{1}\!-\!_{1}$, twill $^{6}\!-\!_{1}\!-\!^{1}\!-\!_{1}\!-\!^{1}\!-\!_{5}$.

Fig. 524, twill $^{4}\!-\!_{1}\!-\!^{3}\!-\!_{1}\!-\!^{1}\!-\!_{1}\!-\!^{1}\!-\!_{1}$, twill $^{8}\!-\!_{1}\!-\!^{1}\!-\!_{1}$.

Fig. 525, twill $^{3}\!-\!_{3}$, twill $_{1}\!-\!^{3}$, 5 shafts, 12 picks.

Fig. 526, twill $^{2}\!-\!_{2}$, twill $^{1}\!-\!_{1}\!-\!^{4}\!-\!_{1}\!-\!^{1}\!-\!_{4}$, 18 shafts, 12 picks.

Fig. 527, twill $^{2}\!-\!_{2}$, twill $^{2}\!-\!_{1}$, 7 shafts, 12 picks.

Fig. 528, twill $^{8}\!-\!_{2}$, twill $^{4}\!-\!_{8}$, 18 shafts, 12 picks.

Fig. 529, twill $^{5}\!-\!_{2}\!-\!^{1}\!-\!_{2}$, twill $^{2}\!-\!_{3}$, 17 shafts, 24 picks.

Fig. 530, twill $^{4}\!-\!_{2}\!-\!^{2}\!-\!_{3}$, twill $^{4}\!-\!_{4}$, 10 shafts, 24 picks.

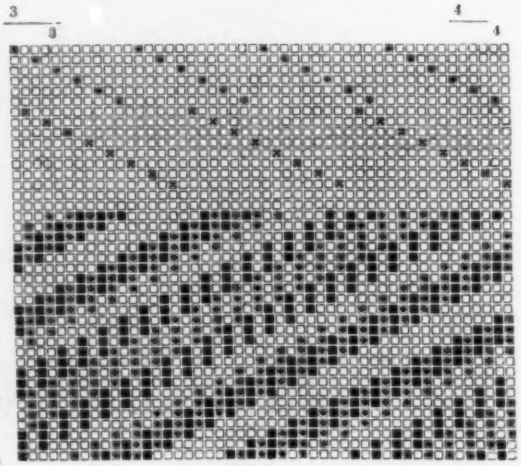


FIG. 534.

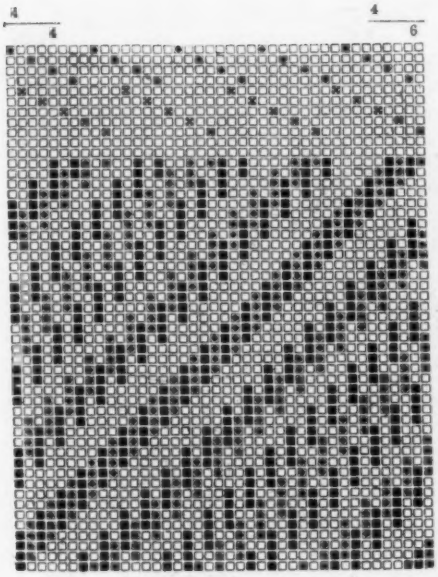


FIG. 533

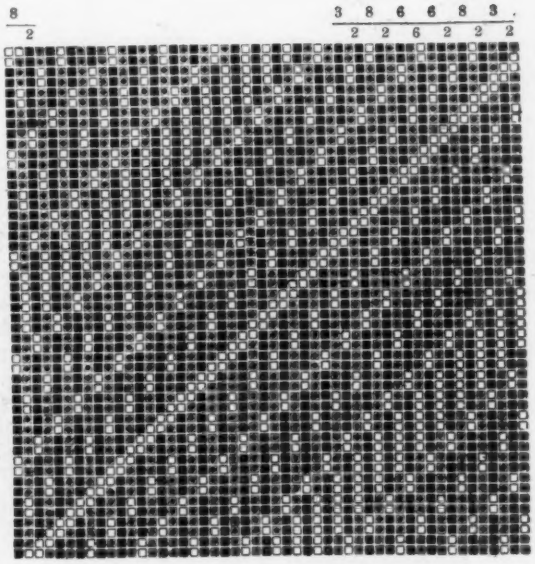


FIG. 537.

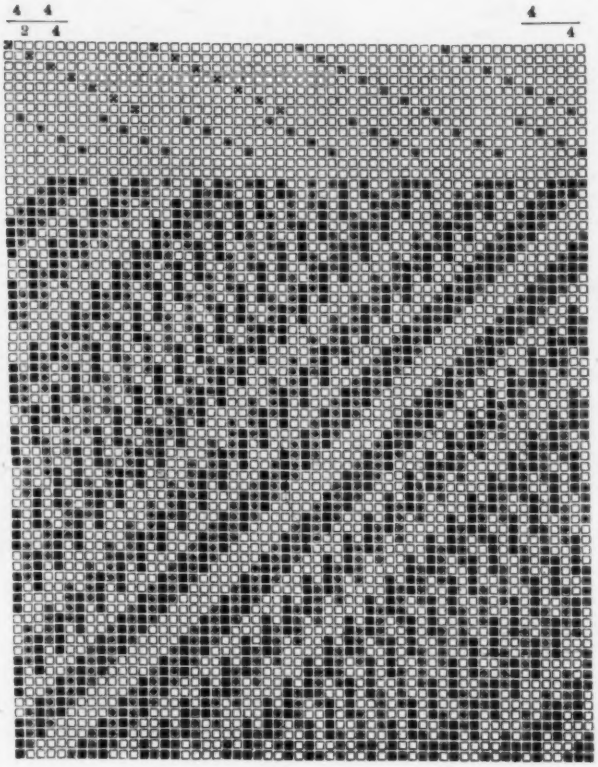


FIG. 535

Fig. 531, twill $^{1}\!-\!_{1}\!-\!^{4}\!-\!_{1}\!-\!^{1}\!-\!_{4}$, twill $^{4}\!-\!_{4}$, 10 shafts, 24 picks.

Fig. 532, twill $^{3}\!-\!_{3}\!-\!^{1}\!-\!_{3}$, twill $^{3}\!-\!_{3}$, 8 shafts, 30 picks.

$^{4}\!-\!_{2}\!-\!^{2}\!-\!_{4}\!-\!^{2}\!-\!_{2}$, 14 shafts, 48 picks.

Fig. 537, twill $^{6}\!-\!_{2}$, twill $^{3}\!-\!_{2}\!-\!^{6}\!-\!_{2}\!-\!^{6}\!-\!_{6}\!-\!^{6}\!-\!_{2}\!-\!^{3}\!-\!_{2}\!-\!^{3}\!-\!_{2}$, 30 shafts, 50 picks.

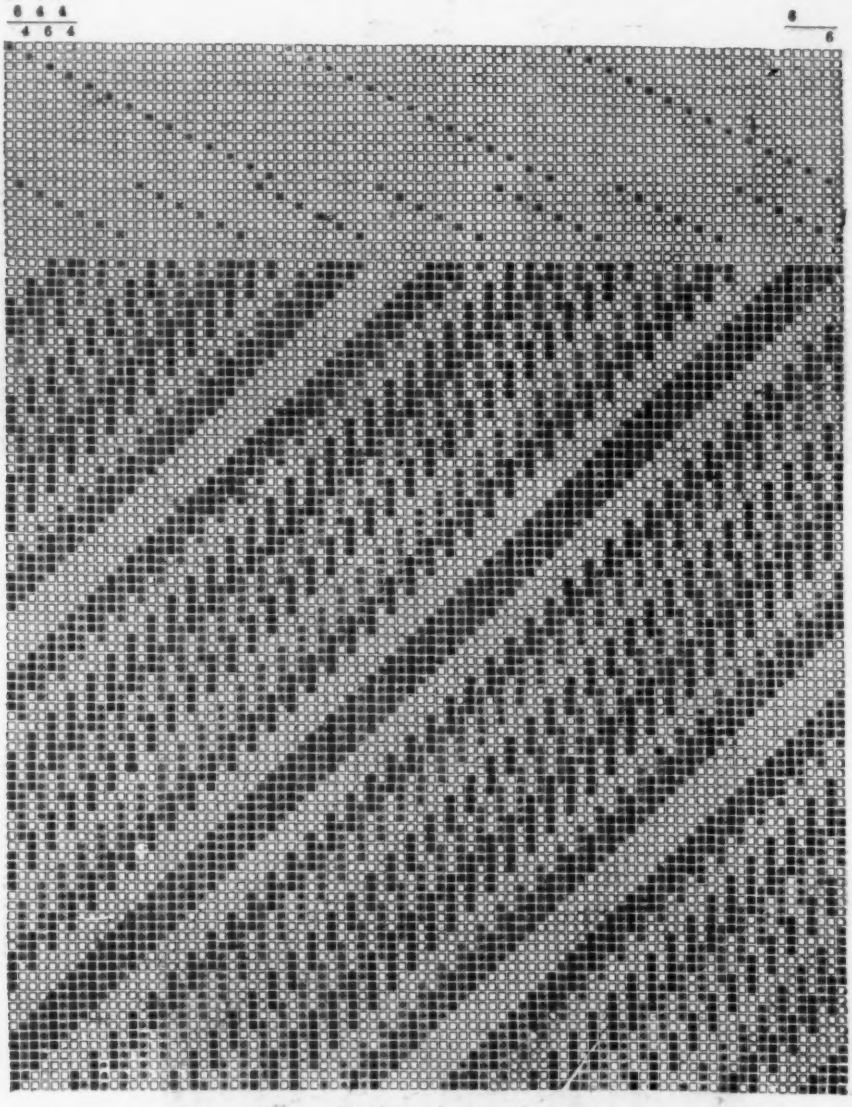


FIG. 539.

Fig. 533, twill $^{4}\!-\!_{4}$, twill $^{1}\!-\!_{6}$, 9 shafts, 40 picks.

Fig. 534, twill $^{3}\!-\!_{3}$, twill $^{4}\!-\!_{4}$, 14 shafts, 24 picks.

Fig. 535, twill $^{4}\!-\!_{2}\!-\!^{1}\!-\!_{1}$, twill $^{4}\!-\!_{4}$, 11 shafts, 56 picks.

Fig. 536, twill $^{4}\!-\!_{2}\!-\!^{2}\!-\!_{3}$, twill

Fig. 538, twill $^{6}\!-\!_{6}\!-\!^{4}\!-\!_{4}\!-\!^{1}\!-\!_{6}$, twill $^{6}\!-\!_{4}$, 21 shafts, 60 picks.

Fig. 539, twill $^{6}\!-\!_{4}\!-\!^{1}\!-\!_{6}\!-\!^{4}\!-\!_{4}$, twill $^{6}\!-\!_{6}$, 20 shafts, 84 picks.

In the total number of cotton spindles Massachusetts exceeds every other state,

MANUFACTURING BLANKETS

BY GREENWICH

The manufacturing of blankets is a part of the textile industry about which we hear or read little, but do know that the blanket mills are constantly running with plenty of orders on hand. The fact is men who could write do not have the time to spare.

There is so much detail work about blankets it would cover considerable space to go into the matter thoroughly. An overseer in a worsted or woolen mill imagines that manufacturing blankets is very simple compared with fancy woolens or worsteds, but he will find if he should secure a position in a blanket mill that he has made a mistake and would soon long to return to the worsted or woolen mill.

We will first start with the carding. In a blanket mill the carder is working from the time he enters the mill until he leaves, because the stock is short and the ends are breaking down no matter how good condition the card is in. The spinner has the same experience. There are so many different lots each of which is composed of different percentages that the overseer is constantly on the lookout to see that none are mixed.

We will start with a common natural horse blanket made to weigh when finished about 4 1/2 pounds, finished 76 by 76, using 1800 ends, 8s cutch cotton. Cutch cotton is preferable to any other shade on account of it not showing so readily in the blanket. The stock used in the manufacture of this natural blanket consists of a very low grade of shoddy and waste with enough cotton added to hold it together. All the accumulated waste in the mill is put into the lot which these blankets are manufactured from and is sold very cheap. They are laid 78 inches wide in the loom as they will shrink about 2 inches in finishing. They are woven 74 inches long as they will stretch about 2 inches in the napping. They are woven with a cotton weave, 22 picks per inch of 55 yard filling. After weaving they are given about 6 runs on each side of the blanket on a wire napper, depending on the twist in the filling as to the number of runs these blankets should require. Care should be taken in the spinning room not to get too much or too little twist in the yarn. Too much will require more napping, too little will make the blanket tender.

A 6-pound blanket is woven with the same number of ends in the warp but laid 86 inches in the loom and woven 78 inches long, finished 80 by 84. A 7-pound blanket size, 84 by 90; 7 1/2-pound blanket, 84 by 84; 8-pound blanket, 84 by 90; 9-pound blanket, 90 by 96; 12-pound blanket, 96 by 100. These are the standard size blankets.

There is a grade of blankets which is made from what is called wool stock fawn color. This stock is made from carpet yarns, old carpets carbonized by the wet process. After carbonizing, they are thoroughly washed and colored fawn. In some cases a small percentage of coarse wool is added to the lot if the staple in the carpet stock seems tender. These blankets generally run from 7 to 12 pounds. For a 7-pound blanket made from 1680 ends of 1 run yarn, laid 98 inches in loom, 28 picks per inch, filling same size as warp, the blanket should be woven about 92 inches long and finished 84 by 90 inches. They should weigh from the loom about 7 3/4 pounds per blanket as they will lose 3/4 of a pound in the finishing, sometimes more according to the stock used.

An 8-pound all wool fawn blanket should have 1720 ends, laid about the same width and woven about the same length as the 7-pound because these two blankets are finished the same size but require more picks per inch to get the weight.

After weaving these blankets are given great care in the fulling department. They should be put through a soaping machine, in order that the soap will be thoroughly distributed on the blanket. They are hard to full and easy to spoil in the mill. It requires considerable time to full these and they have to be closely watched to see that they do not chafe. By chafing too much they will lose in weight. After they are thoroughly fulled, washed and dried, they are napped. If the yarn is not twisted too hard

about five runs on each side will be sufficient to nap thoroughly. Some mills use an up and down teasel gig as they think one run after the wire nappers makes these blankets look better. About 12 blankets are woven to a cut as this number is about right to handle to good advantage. After they are thoroughly napped they go to the strapping department. They are first whipped carefully with proper yarn, strapped and buckled.

There is a point here which might be of interest to the reader. The Western trade calls for blankets that are strapped and buckled differently from those used by the Eastern trade. The Western people want the strap and buckle put on the blankets so that the border will hang by the side of the horse. The Eastern trade want just the reverse, the border to hang over the neck of the animal.

There is another blanket which is made from different stock than the ones previously mentioned. It is what is called a fancy plaid blanket made from cotton, coarse shoddy and a small percentage of wool and made with a variety of colors in different patterns. A pattern given below gives a very neat effect. The warp is laid as follows and the filling woven the same with a fancy border made from the different colors:

Tan	60	60	10	10	=	140
White	10	10	10	10	=	40
Light Green	10		10		=	20
Red			10		=	10
Black			10		=	10
						220
					sec.	7
						1540

The warp and filling is 80 yards, finished 80 by 84 inches, it being a 6-pound blanket. They are made from 6 to 10 pounds.

Another blanket which is sold readily by manufacturers is the saddle blanket made from different stocks, some woven fancy plaids, others plain. These fit under the riding saddle and weigh from 2 to 4 1/2 pounds. They are finished 64 by 32 and woven with 1800 ends of 8s cotton on 8 harness drawing-in as follows and woven with a double weave as per draft:

28 threads on first 4 harnesses.
16 threads on last 4 harnesses.
12 threads on first 4 harnesses.
8 threads on last 4 harnesses.
8 threads on first 4 harnesses.
8 threads on last 4 harnesses.
12 threads on first 4 harnesses.
16 threads on last 4 harnesses.

A variety of patterns can be obtained by changing the drawing-in draft to have a different number of ends on the different harnesses. A very pretty lap robe can also be made from the same number of ends and drawing-in on 8 harnesses. These robes are made from 3 1/2 to 6 pounds. All robes are finished the same width and length, 54 by 66 inches.

Few fancy woolen or worsted weavers are employed in blanket mills. The reason is blanket weaving is more difficult than the weaving of woolens and worsteds. The loom has no box chain to weave the pattern. The colors are put in by weavers changing their shuttles after so many picks are woven of each kind. When getting out the samples the designer or superintendent has the cotton warps arranged according to the pattern desired and stands at the loom with the weaver telling him the number of picks of each color required. The weaver then makes three or four blankets which are called samples. These are cut into narrow strips about 8 inches wide. One or two of these strips are kept at the mill, the others are given to the salesmen for samples and orders are taken from the swatch. When orders are received the boss weaver has the warp arranged as per pattern, makes the string for the length of the blanket, marking the length of the border, gives the swatch to the weaver. The filling carrier looks over the swatch to see the different colors of filling in the same and the weaver starts the blanket. The overseer regulates the picks per inch and can generally tell by the feel of the blanket among the looms whether the weight will be sufficient. This he learns by experience. The weaver weaves half of the blanket according to the swatch and then the pattern reverses, which

makes the full blanket. After they have woven one or two, they return the swatch to the desk and it is seldom that they make a mistake in the order the colors should go in. The weaver has a great deal to contend with. The filling is not always the best and a good deal of breakage occurs, but they seem contented for the reason that they have never had experience on different work.

A NOVELTY VOILE

BY KAPPA

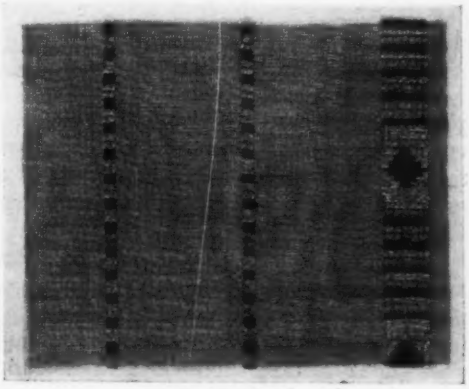
This silk striped voile has a set of 50 ends and 50 picks, the yarn being 2/100s hard twist in both warp and filling. This cloth is finished 40 inches wide and runs about 7.66 yards per pound. The silk is 24/26 Italian and is woven 2 ply. Both silk and cotton take up about 2 per cent. in weaving.

The cotton yarn is drawn in on the first and second harnesses and the silk is drawn on the third, fourth, fifth, sixth and seventh harnesses. In the ground the cotton is reeded one end to a dent and where the silk comes one end of silk 2 ply is reeded with one end of cotton, making two ends per dent. The pattern is as follows:

24 ends cotton.
1 silk and 1 cotton 4 times—silk on 3d harness.
48 ends cotton.
1 silk and 1 cotton 4 times—silk on 3d harness.
48 ends cotton.
1 cotton and 1 silk 2 times—silk on 4th harness.
1 cotton and 1 silk 2 times—silk on 5th harness.
1 cotton and 1 silk 2 times—silk on 6th harness.
1 cotton and 1 silk 4 times—silk on 7th harness.
1 cotton and 1 silk 2 times—silk on 6th harness.
1 cotton and 1 silk 2 times—silk on 5th harness.
1 cotton and 1 silk 2 times—silk on 4th harness.
20 ends cotton.

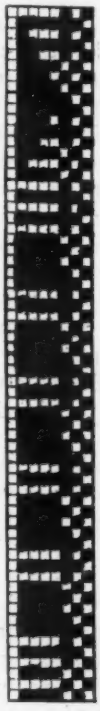
This pattern is drawn 7 times and 100 dents into the next pattern. With this layout the pattern will balance, that is to say, there will be as much space of plain cloth between the selvage and the first silk stripe on one side of the cloth as there is on the other. The silk, of course, is on a separate beam and is drawn 2 ply. The selvage is drawn 14 ends 2 ply and reeded one end 2 ply per dent on each side.

The effect desired in this kind of a cloth is to have the spaces between the yarn as nearly square as possible, therefore the set should be square, that is, there should be the same number of threads per inch in warp and filling. The yarn for voile fabrics is al-



A STRIPED SILK VOILE.

ways twisted harder than for ordinary fabrics and in the finer grades is gassed singed.



THE DRAFT FOR A NOVELTY VOILE

The ground warp is reeded one end in a dent and the silk one end of 2 ply in a dent

with the ground warp. Each selvage is a little over 1/4 inch wide, with 14 dents on each side, and is reeded one end of 2 ply in a dent. Using two ends to a heddle in this way gives a smooth, firm selvage and not only gives the cloth a better appearance, but also makes it weave much better also.

There is always a demand for voiles, both plain and fancy, such as silk striped and tape voiles. It is impossible to weave figures in the ground of these fabrics on account of the loose texture being unable to throw enough yarn on the face to make any contrast, therefore the figuring must be done in the stripes. When silk is used in the stripes, any figure or fancy weave is more pronounced and it is for this reason that the novelties or fancy voiles are generally seen with silk instead of fine cotton for the figured effects.

ENGLISH NOTES

By Our Regular Correspondent

A small sample is forwarded of a new product going by the name of "artificial wool" which has been successfully carded with wool to make blankets. The material is a golden-brown in the unbleached state and after bleaching is of a yellowish-white wool shade. The length of staple is ample and the fiber has luster as well as curl so that the resemblance to wool is considerable. It is, however, a vegetable preparation, appreciably harder, crisper, brittler and less lofty than wool. The fibers are imperfectly separated, and of perceptibly different diameter. The product is French and said to be made from jute, and it is offered on this (the English) market at 8 cents a pound. The price is high for the industry that is best adapted to handle the stuff and although the price would be an attraction to worsted men it remains to be shown whether it can be satisfactorily blended in a worsted sliver. Wool substitutes arrive in this country more quickly than they are adopted. Of the "marine fiber" of which much has been heard the latest news is a report to the Kidderminster Chamber of Commerce in which a Mr. Chadwick announced that after careful examination he had been led to the conclusion that the fiber was unsuitable for either carpets or clothes. Dry, it was liable to pulverization and when the air was moist the article made from the weed became moist also. "Artificial wool," whatever its defects, is a more meritorious substance than Poseidonia australis. [A sample of the new product can be seen at our Boston office. —Ed.]

* * *

The great bulk of British exports of wool fabrics consists of low carded woolens, made from cotton and rag-wool and of worsteds of ordinary pattern and finish, but every year the exports of fine cloths increase. All over protected Europe, just as in the United States, there is a well-to-do public which will have English cloth from its tailors and the trade is a distinctly profitable one. Fine cloth implies such tweeds as the Scotch ones and worsteds with a large number of picks per inch. American manufacturers will perhaps know how to envy a man with forty or fifty looms, weaving goods often of 150 picks and sometimes of 204, who practically has no change of weavers and seldom has trouble at the looms. The weavers are girls and such is their perversity that the only goods they allow to go wrong are the cheap and plain ones which are made at certain seasons at cut prices for the sake of keeping the machinery going. The manufacturer sends the materials for the fine goods into the shed, shuts his eyes and stops his ears and knows nothing more about them as a general rule until they are satisfactorily woven and delivered.

An instance is given of the kind of order such a manufacturer very occasionally receives. He had made in 1909 two sample pieces of an extraordinarily fine three-and-three indigo twill, destined for trial by the officials in some South American State where public money seems to be of less consequence than perfect uniforms for public officers. An order came in 1911 for 25 pieces of these 14-ounce twills and it was booked at the apparently high price of $1.74 a yard. But yarn of the requisite quality costs $1.08 per pound and as damaged goods of this class do not sell to any better advantage

than cloths at about half the price, the margin means only a moderate cover for the risk. To make these goods some 1,500 pounds of yarn were necessary and to get that quantity the spinner had in turn to buy 10,000 pounds of wool. Scouring-loss and noils played their part in swelling the raw weight, but the principal factor is the unsuitable character of the bulk of the fleece. One fleece yields perhaps no more than a handful of wool of the requisite quality. All other considerations apart, this manufacturer feels a sense of pride in producing articles of such quality.

* * *

A recent note in these pages gave some general and personal particulars about the prevalence of self-made men in the English textile industry. Two Manchester investigators have made the subject one of statistical inquiry and they discover that not less than 80 per cent. of Lancashire employers in the cotton weaving industry began life as operatives or clerks. The cotton spinning trade is principally carried on by limited companies and it is found that 33 out of 45 directors of spinning enterprises began at the bottom of the ladder. In one area 13 per cent. of the mill treasurers, 42 per cent. of the mill managers and 67 per cent. of the assistant managers are from working-class families. The inquiry is to be carried further and to comprehend more branches of the trade. Messrs. Chapman & Marquis make a point of the inference that trade unionism has not obstructed the upward movement of units from the ranks. Many explanations have been proffered at different times to explain this development from workman to employer. These range from teetotalism to free-trade and from limited liability to the room-and-power system of letting mills. In towns like Burnley a budding manufacturer can rent looms as well as space and engine-power. Given a good purchase of yarn and a fortunate sale of cloth he may make a sum at one stroke that will considerably facilitate his further development. Manufacturers have usually grown up in the mill, but one who is far from being the smallest or poorest in the Huddersfield worsted trade rose from the bar of a saloon.

* * *

English law permits half-time labor to begin at twelve years of age, subject to certain school attendances in the past and the labor of these young persons is of very considerable assistance to Yorkshire worsted spinning mills and to cotton spinners. The educationists do their best to prevent the young from working half time and in the towns the authorities take it on themselves to review the parental circumstances and to decide whether the parents can afford to keep the child at school until fourteen—the time of complete exemption. Spinners in the West Riding, outside the great towns, within the area governed by the County Council, have had their peace disturbed by the Council's refusal to issue exemption to children who have not passed the seventh (or highest) standard. The decision is equivalent to saying that the child shall stay at school until fourteen and the effect is at least two-fold. The available supply of juvenile labor is curtailed automatically and at once and prospectively is still further shortened. Waiting until the full age means that fewer will enter the mill at all and mill managers who look at the whole question dispassionately are emphatic in saying that late arrival in the mill spells a life-long loss of efficiency as frame-spinners and inevitably involves injury to the quality of the finest yarn.

* * *

The New York cotton market put its own construction upon the Lancashire labor troubles, ascribing them to the machinations of bearish spinners. But the strike was an affair of weavers, not of spinners and its causation is fairly clear to read. The weaving trade was brisk and the operatives saw their way to more money. They applied for an advance of 5 per cent., all or half of which they were reasonably sure to have obtained without an actual stoppage. The non-unionists equally with the unionists would have shared the benefit and being tired of assisting non-unionists the operatives' leaders decided upon a movement to round-up the

non-contributories. A resolution was passed to the effect that where 85 per cent. of the weavers, winders and warpers at any mill were unionists they should decline to work with those who did not belong to the body. Employers were expected to become the agents of the union and act as its whippers-in. They refused the position, the four weeks' lock-out followed and work was resumed under a truce. The unionists up to the date of writing have secured the weekly shilling from most of the non-union weavers, but have not got their advance and are considerably less likely to get it than two months ago, before the embitterment occurred.

* * *

Doubtless the present year is to be a fairly profitable one for English cotton spinning and the money is wanted to redeem the bad record of 1911. One hundred companies running 6 1/2 million spindles and owning $16 1/2 million of plant made on an average less than $2,000 apiece after paying loan interest and depreciation. They made, on Mr. Tattersall's calculation, 1.06 per cent. on their share capital or .71 per cent. on the share and loan capital which represents their real liability. In 1907 the hundred mills paid 15 7/8 per cent. dividend on shares and 11 3/4 In the succeeding year. The dividends have tailed off from 7 7/8 per cent. in 1909 to 5 3/5 in 1910 and 4 3/5 per cent. in 1911. The figures of course are from the available records and reflect the fortunes of a group of mills large enough to be representative of those which publish accounts. This class of mill is, however, not necessarily the most remunerative and it is probable in any year that there are enterprises of a more private character with rather better financial results to show.

* * *

Extracts from evidence given in the liquidation of one of the numerous Lancashire companies formed to build a cotton mill during the boom of 1907-8:

"The company got no further than paying the architect $7,500.—The money subscribed by shareholders had apparently gone and money on loan to the tune of $15,000 had gone also. All that was left was a doubtful debt.—It was an essential condition that one firm should be employed as architects and consulting engineers and the same condition applied to five other companies. The arrangement, except in one case, was for 5 per cent. commission upon the cost. Allotments of shares were made from the architects' offices and directors' meetings were held there."

The items show how some of the less welcome products of the boom came into existence and may be read as substantiation of statements already made as to some causes of dissatisfaction over the new mills. Everybody concerned with the flotation had pockets to be filled and the disregard of any other considerations was complete.

* * *

So little is done in the way of formal welfare work in English mills that the arrangements made by a concern on the outskirts of Leeds stand out as rare and exceptional. Reuben Gaunt & Sons of Farsley spend $3,500 a year upon an Institute for the help. They pass round every afternoon about 250 mugs of tea to the different departments and quarterly every man who has preserved an unbroken record for time-keeping receives a card: "Your time record for the past quarter has been perfect. Thank you. Herewith please find $1.20 in fulfilment of our promise to you." The man who keeps perfect time for twelve consecutive months receives an additional $1.80, so that the full bonus represents something like an extra week's wage per year. Taylor's of Batley and Thomson's of Huddersfield aim at similar effects by profit-sharing and the philanthropy of another woolen manufacturer finds its expression in a convalescent home by the sea for his workpeople and their dependents. Friendly talks, merited advances of wages without solicitation serve to maintain a sort of family spirit in some smaller mills and this atmosphere is not too difficult to maintain in establishments of a certain size.

The shipments of raw silk from China to the United States in 1910 were 915,824 pounds, as compared with 710,864 pounds in 1911

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

NUMBERS FOR TOPS

Editor Textile World Record:

Please explain the meaning of the numbers such as 44s, 46s, 50s, 58s and 60s as applied to various makes of tops? Dexter (1980).

The numbers applied to tops to designate the quality do not necessarily indicate the counts of yarn to which the tops can be spun. The following explanation of the situation regarding the numbering of tops to indicate the quality is taken from the December, 1910, issue of this magazine:

The connection is rather uncertain and remote in these days. The numbers given to tops are not necessarily an index of their spinning length. Thus there are plenty of so-called sixties tops which are neither fit nor intended to spin beyond 24s. They are "sixties" only by virtue of the fineness and quality of the fiber; not because of its length. It has to be understood that any topmaker is at liberty to christen his blends as he likes and that the spinner judges not by the name, but by the sample. Standards deteriorate in time and the denominations given to tops do not signify what they used to. The deterioration is irregular, some makers keeping a better standard than others. Nobody thinks of trying to make 48s out of market 60s, but this length is often spun from 58s or 56s tops, the quality then being fine crossbred. If merino quality is wanted, 64s or a highly super 60s must be used. The numbers may be misleading, but so would they be if based exclusively on length without regard to fineness. Perhaps the least objectionable way out is found by those topmakers who offer samples under their own marks and let customers call them what number they please.

"Sixties" is the most ambiguous and artificial of names, but the case is not so very different with 40s. To spin 40s yarn a 46s top is taken for medium coatings. The nominal 40s top may not spin much beyond 20s, but good 40s colonial will go to 32s safely and good 40s English to 36s. There used to be an abundance of tops described as 32s, but the former 32s now masquerade as 36s and the 36s by one of time's changes have mostly become 40s. These changes date from twelve to fifteen years ago when crossbred material was excessively high in price.

"Names are nothing" say buyers emphatically and enough has been said to show that Bradford top numbers have to be interpreted with understanding. Every spinning mill has its own individualities in the character of yarn turned out and yarns from different mills of one count and nominally one quality show different characteristics. "The sample is the thing," the buyers unanimously declare and this is so in yarn and cloth as well as in tops. Knowing the purpose in view, the topmaker of course submits the samples that are the most likely and may caution the spinner against using another of the same name. Similarly, the spinner will guard himself from claims by warning the manufacturer that such and such is not suitable for a warp-faced or a filling-faced fabric. In view of the immense diversity of cloths made from Bradford yarn a perfect standardization of tops must be a very long way off and any system of naming must have its pitfalls.

During 1907-8 an attempt to define details of the quality of Bradford tops was made by the staff of the Bradford Technical College. According to a table published in the quarterly report of that institution in April, 1909, the counts of yarn to which Bradford tops will usually spin are as follows:

Quality No. Tops.	Yarn Count Limit.
28s	16s
32s	24s
36s	28s
40s prepared	36s
40s carded	32s
44s prepared	40s
46s	40s
50s	44-46s
56s	48s
58s	50s
60s warp quality	48-50s
64s	56s
70s	80s
80s	100s
90s	150s

The table was compiled by Edford Priestley after experiments with a large number of samples with the idea of offering "a means whereby within reasonable limits" standards may be defined. In other words, the figures give a fair average which is not binding on anybody, but which is commonly attained in practice. Regent.

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DYEING MERCERIZED COTTON

Editor Textile World Record:

We have been trying to get a pink and blue mercerized cotton that will stand dyeing and come out bright and near the same color. We bought developed colors and have been very careful about dyeing, but the colors change so much that they are no good. We color an acid black in a formic acid bath and we desire a pink and blue that will stand cross dyeing for forty minutes in this bath. The colors that we have tried so far have all come off during the dyeing process. Will you kindly tell us how to overcome this?

Buxton (1986).

Two considerations are necessary to make a good job of cotton dyeing to stand cross dyeing with acid colors. First, the cotton dyes must be applied by a process that is capable of producing fast colors; second, the cross-dyeing bath must be made up with dye that will not stain the previously dyed cotton.

For pinks on cotton, try Diamine Rose B D Extra or G D or Direct Rose T dyed in the usual manner as for direct colors. Irisamine G or Rosazeine 6 G are also used for this purpose, dyed on tannin and antimony salt mordant, and after dyeing again passed through the tannin and antimony salt baths. All the above colors resist formic acids in the cross-dye bath.

For blues, try New Methylene Blue G G or N, dyed exactly as for Irisamine above mentioned.

To dye cotton for cross-dyeing, especially when mordanting with tannin, give plenty of time,—say, over night, and fix thoroughly in the antimony salt bath. Time is a very important factor. In selecting the acid black, it is always best to decide after making a few trials on a laboratory scale, and even then proceeding with caution with the first set of pieces in the dyehouse.

Beta-Naphthol.

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THE MANUFACTURE OF ROSETTES

Editor Textile World Record:

Kindly inform us how the rosette, like sample enclosed, is manufactured. Victor (1987).

The rosettes, one of which is illustrated at Fig. 1, are made of worsted yarn, and come under the designation of passementarie. They are made entirely by hand. The production can, however, be increased by a division of the labor and it is also possible to arrange for manufacture by machinery.

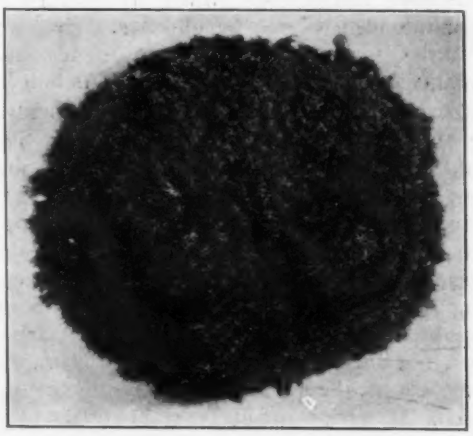

FIG. 1.

These rosettes are ordinarily made of wool either bleached or dyed, the yarn being of coarse counts and with very little twist. As the yarn projects for some distance to form the rosette, it is necessary to have it consist of long fibers, otherwise the short fibers will fall from the rosette when it is in use.

The manufacture of these articles consists of the following operations:

Winding. The wool yarn is first wound on a small metal or wood plate, which should be a little longer than twice the height of the rosette. This operation gives a small skein of yarn containing more or less material according to the desired size of the rosette.

Tying. After being removed from the plate the skein is tied tightly with a strong cord at the center. The sailor's knot is preferred because it holds the wool fibers firmly in place. Fig. 2 shows the form of the skein when tied. As the twine remains on the rosette it should be of a color corresponding to that of the yarn.

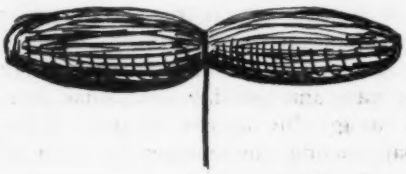

FIG. 2.

FIG. 3.

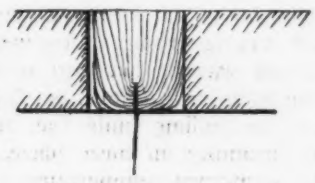

FIG. 4.

Doubling. The skein is then drawn through a small hole in a metal or wood plate. Fig. 3 shows a cross section of this plate with the rosette drawn through the hole. If the yarn is not squeezed too tightly in the hole the rosette can be drawn through by the twine, which is attached to it. If, however, considerable force is required on the rosette a short piece of steel wire can be used for this purpose. The thickness of the plate, 2, enables the height of the rosette to be regulated.

Cutting. The projecting ends, 4, of the rosette are now cut even with the plate by the edge of a sharp knife. As the yarn is pressed tightly together this can be easily done. Where a number of rosettes are set in one plate the cutting can be done by a band saw, if desired. Fig. 4 shows the cross section of the rosette after being cut, the projecting ends of the yarn being of different lengths according to the position occupied. The inner ends are shorter than those on the outside. The rosette is then drawn from the plate with the aid of the string or the steel wire.

Steaming. As soon as removed from the plate the wool expands and opens slightly. This operation is facilitated by steaming. The rosettes are laid on a lattice or screen which is then placed over boiling water. An exposure of half an hour results in opening the yarn perfectly, this operation finishing the rosette. Care should be taken not to steam bleached rosettes too long, otherwise the wool will be turned yellow. As the demand for these goods is small and intermittent the work is done entirely by hand. A machine for manufacturing the rosettes would be expensive and would necessarily be idle a greater part of the time. Gaul.

WRINKLES IN WOOL GOODS

Editor Textile World Record:

Can you tell me of any remedy for wrinkles in wool goods, shown in the enclosed sample. The goods are two faced, the warp on one side and the filling on the other, and the wrinkles form in almost no time. I tack them and run through a soaping machine with warm soap, run in the fulling mill three double, which gives 18 to 20 yards around. I then take them out and shake and charge the ends two or three times. The soap seems to be of good strength and starts the grease and they lather well in the washer.

Maxwell (1988).

Like all finishing room difficulties, it is not easy to determine the cause and give a remedy without being on the spot and seeing the goods in process. It is, however, evident that the trouble is due to excessive felting in streaks. The wrinkle marks which show in the goods are doubtless due to the cloth running in the fulling mills continuously in the same folds or wrinkles, causing increased warmth and consequently more felt where these wrinkles occur. Anything that can be done to break up this tendency to sameness will be a benefit. Upon holding the goods to the light and looking through, the extra compactness of the cloth where these marks occur can be plainly seen.

Where there is more felt there is bound to be more nap when finished, whether napped wet or dry. I find that two inches in width where these heavily felted streaks occur, contains five more warp threads than where the marks show the least, and that the heavy part weighs six-tenths of an ounce more per yard.

There are several conditions that may tend to cause these wrinkles. By calling attention to these, a way out of the difficulty may be found. I should say that the use of warm soap is wrong, as it gives to the cloth a certain warmth that may be retained only in the folds or wrinkles, so that when they enter the fulling mills the fulling begins more promptly in these places. Cold soap gives a uniform temperature to start with, and all parts of the cloth have an equal chance, as the warmth is generated in the process. Care should be taken that the cloth gets sufficient soap, with no dry streaks in starting.

If the ends of the cloth are stitched together by hand, too coarse or irregular stitches will produce wrinkles, and the use of a sewing machine will obviate this difficulty. I am of the opinion that running the cloth three double, with only eighteen or twenty yards around, is not only crowding the goods too much, but gives little chance for it to change its position or folds as it passes around. If there are no guide holes or bars for separating the three strands as they come up from the bottom of the mill, the cloth must run continuously in the same folds, and the confined portions get increased warmth, and in consequence more felting.

Most modern fulling mills are built for running the cloth double, with guide bars for separating the two strands as they come up from the bottom of the mill. I have never seen any device for separating three strands. By the use of these separating bars the strands pass into the rolls side by side, and cross each other just before entering these guides. The strand at the right passes to the left guide and the one at the left to the right. This tends to change the position of the folds in the process.

Rolling selvages will cause mill wrinkles of the worst kind along the sides of the cloth, and as the sample shows them more at the sides, I infer there may be an inclination to rolling in this case. Goods constructed with a preponderance of filling on one side, as these are, nearly always roll toward the filling side. This may be remedied somewhat by tacking the selvages with the filling side out, so that in their tendency to roll they hold each other from doing so.

While the above suggestions should be the means of helping out, it may be borne in mind that the construction of the cloth, as well as tendency to full quickly will call for constant care, and possibly occasional shaking out to get the desired results. Using cold soap, tacking the selvages and running double with proper guides as suggested, should make a marked improvement. There is a possibility that the pressure of the top roll of the fulling mill may be too great. Loosen up the springs just enough to steady the roll when there is no cloth in, and the pressure will be sufficient when the goods are run double. Extreme pressure tends to crush the wrinkles so that they become set and resist a change of folds. Elmo.

BLEACHING SEA ISLAND COTTON

Editor Textile World Record:

Please give me some information on the bleaching of Sea Island, Egyptian and peeler cotton yarns for knit goods. Also the best method of boiling out warp chains for mercerizing, or the treatment that will give the yarn the highest luster. Bleacher (1975).

This is a rather difficult question to answer, as there are so many different ways of obtaining the results desired. The method that is in general use is the caustic boil, chlorine bleach, either chloride of lime or the new liquid produced by the electrolyzer which is gaining popularity every year, with acid as a neutralizer. This is used for the bleaching of the material. The system of handling is another matter. Some prefer to boil in the bundle, in either open kiers or high pressure kiers, the high pressure kiers being preferable for a caustic bleach. Some boil off in the bundle in the kier, and then the goods are transferred to a washing machine where they are bleached and washed and soured with removing. We will sup-

pose "Bleacher" is to bleach a batch of 2,000 lbs. of yarn in the bundle. To begin with the goods are put in a kier, each layer being evenly pressed down, the joints being broken as much as possible and each layer saturated thoroughly until they are all in the kier. A liquor of caustic soda is made with 2 to 4 per cent. of caustic based on the weight of the goods in the batch and varying with the quality of the yarn, a fine yarn not requiring as much as a coarse yarn. Allowance is also made for the twist. If it is a soft twist it will not require as much as a hard twist. Enough liquor is made to cover the goods. They are then boiled from 6 to 9 hours as the case may be. If a good white is desired and the goods are to be finished soft they should be boiled 6 hours, then washed in the kier, next treated with a fresh liquor of 2 per cent. soda ash and then boiled again for 3 or 4 hours. Then wash off and bleach, using the bleach liquor at 1/2° Tw. at the strongest. Then wash off and neutralize with acid, care being taken not to have either of the baths too strong. After washing the goods off and extracting they are ready for drying. The above process is all right if the goods are carefully watched at boiling. Do not use any soap or softener in the boil, nor have the chemic too strong and then a strong acid will not be necessary to neutralize the bleach.

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KNITTING ARTIFICIAL SILK

Editor Textile World Record:

We would like to have information in regard to the method of winding artificial silk for knitting into neck scarfs. This silk comes to us on spools and cones, but our experience has led us to believe that some special winder or attachment to the winder is necessary in order to wind this yarn successfully. Up to the present we have had a great deal of trouble. The percentage of waste is too large. There is not much finishing in connection with the garment, but we know that better results are being obtained than we have got up to the present. So far as washing is concerned, we do not believe that the garments can be washed at all, but we have been frequently asked this question by the trade.

Knitter (1995).

By artificial silk it is presumed that "Knitter" has reference to what is called "wood" or "fiber" silk. This class of silk is used with very good results on 12 gauge machines for making neckwear. In making neckwear four or five ends are generally run. These ends are doubled on a doubling machine so as to have them all on one spool. In some places the silk is knit just as it comes from the doubling machine, but this does not give very good results. Winding the silk from the doubling spools on cones often gives good results, but as this class of silk is very wiry it has been known to come off the cones too fast, forming knots and making holes in the goods. The best results are obtained by getting the silk twisted first to the required size and then wound from skeins on a bobbin winding machine which has scrapers to catch the knots, lint and dirt, using 4 1/2 or 5-inch bobbins. A large quantity of silk can be used in this way with very little waste. It has been found that fiber silk can be washed with very satisfactory results.

Laramie.

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FINISHING HOSIERY

Editor Textile World Record:

Under another cover we are sending you a sample of our 108 needle merino half hose. This is made out of yarns that will run 100 grains to 50 yards, about equal to a No. 4 cotton, in the heel, toe and leg. We have always had a lot of trouble in finishing these goods or goods of this character so that they would come out smooth at the points where the heels and toes are looped on. There seems to be for some reason too much yarn in the heels and toes, causing them at this point to pucker up, or rather to buckle up, giving them the appearance of being poorly finished. We have tried to overcome this in every way, but even if these goods are put on boards and pressed it does not take up the excess yarn at these points, but simply folds it over and wrinkles it.

We also have some difficulty in getting the heels and toes even at the points where the two looper seams end, which should be exactly opposite each other near the center of the heel and toe. There is a tendency for the heels and toes to appear lopsided after they are finished. There will appear to be more of the white heel and toe showing on one side of the sock than there is on the other, no matter how carefully they are boarded. There is a dispute between our knitting and finishing departments as to whose fault this is, each claiming that the other is to blame. It looks to us as though the difficulty was mechanical, as no board that we can fit these socks to will produce a smooth heel and toe, without buckling up or causing bad folds or wrinkles in them.

Wilcox (1964).

One may suggest forty remedies to right the trouble and yet may locate the difficulty at the first suggestion. Examining the sam-

ple, I find it is twisted from leg to toe, which is the reason for the points not meeting together as they should. I would suggest "softening" the yarn, which will add much to the appearance of the sock, giving better face and finish. This should have a tendency to eradicate the twist and keep it straight. Failing in this, have the spinner give an opposite twist on the yarn, as the material cannot but come out as it does where the twist is same as run of machine. The "softening" should do much and the cost of doing this is hardly worth taking into consideration. Most certainly the yarn should not be knit dry.

For softening the yarn fix a small trough on the winder (where the yarn passes through shippers), have a metal drum revolving therein. The mixture of softening is 5 pounds good quality soap, 1 quart lard oil to about 30 gallons of water and have yarn pass over the drum. If only a little softening is desired have drum revolve with yarn or revolve to the right; if wanted or necessary to be well softened have drum revolve against the yarn. Kentland.

DYEING HOSIERY

Editor Textile World Record:

The enclosed samples of hosiery have been dyed together in the same batch by the ordinary oxidized aniline black process. You will notice by comparing the two stockings that one is a bluish black and the other has a brownish tint. This happens quite frequently and I would like to know what causes the trouble and how it can be remedied. Dyer (1957).

Not knowing the exact process through which these goods were put it is hard for one to give the cause and remedy for the uneven dyeing, but the following may be a few of the causes: To begin with it is necessary that the goods in question be thoroughly wet out or boiled out, and that they are boiled out uniformly before they go to the dollys, or pounders, for the so-called first process. Second, the goods must all be taken out of this liquor and hydro-extracted for from 3 to 5 minutes. Do not let the goods get too dry. Then spread out evenly in the ageing or oxidizing chambers or cages. The heat in these cages should not exceed 95° F., or at the very most 100°. Here let them stay for 4 or 5 hours, according to the depth of the shade required. This is the most important part of the whole process. Sometimes a few pair or a dozen stockings will be accidentally left over and go through the same process with the next lot, and this may be the cause in the case under consideration. It is a good plan if crowded for time and space to dump the stockings out to age for another hour or two before starting the goods on the next process. The goods should now be brought to the washers or reverse machines for the chroming process, and this is another place where shades may be varied. Here again the operative may leave a few stockings in the chrome liquor, and consequently these will go through the same process again, making a darker and browner shade on the goods. After chroming the goods must be thoroughly rinsed. I would suggest that the foreman follow one batch right through each process, and if he finds one batch to come out all right, he should check up the different processes all the way through. I have no doubt but that this difficulty is caused by an uneven wetting of the goods, or else some of the goods being left over from one process to another. This might also be caused by either too little or too much extracting, or uneven heat in the oxidizing cages. By following up each process carefully I never have uneven shades.

Edgmoor.

"TARTARLINE" IN DYEING

Editor Textile World Record:

Referring to the inquiry of "Comber" (1970) which is set forth on page 552 of your February issue, we would suggest the use of the product known as "Tartarline" as a means of overcoming the difficulty "Comber" seems to be laboring under in his dyeing operations. A description of Tartarline and its uses was given on page 468 of your January issue. While mordanting may be accomplished by the use of the straight bichromate of potash, there is always a very serious waste of this expensive chemical unless it is

first reduced by the aid of the proper acid, which reduction gives the chrome an affinity for the fiber and and renders it all available for the mordanting process. "Tartarline" presents the most perfect means of reduction for bichromate of potash and thus prevents its waste, and has not the slightest deleterious effect on the most delicate fiber. If 4 per cent. of chrome is used, from 3 to 4 per cent. of "Tartarline" would be required, according to the hardness of the water used.

Worden Chemical Works.

4 Cedar St., New York.

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WORSTED SPINNING MACHINERY AT LAWRENCE

Editor Textile World Record:

What amount of worsted combing and spinning machinery is located in the mills at Lawrence, Mass.? Duncan (1992).

Following is a summary of the worsted combs and worsted spinning spindles, as reported in the Official American Textile Directory: 516 combs, 568,464 spindles.

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STEAM FOR HEATING WATER

Editor Textile World Record:

What amount of steam is necessary, at 100 pounds' pressure, to raise water at 60° F., in a wooden tub (capacity 10,000 pounds) to a temperature of 210° and keep it at this temperature for one hour? The temperature of the room is 60° F. The water surface exposed to the air is 38 1/2 square feet. Yorke (1998).

"Yorke" states that the steam is under 100 pounds pressure. At this pressure it will have a temperature of 338° F. and one pound of steam under such conditions will contain 1,189 heat units. Since the quantity of water to be heated is 10,000 pounds and the initial temperature is 60° F., with a final temperature of 210° F., this would mean that the necessary heat units required would be: 10,000 × (210 — 60) = 1,500,000 heat units. Since the water surface exposed to the air is 38 1/2 square feet and the temperature of the room is 60° F., the heat lost by radiation from this surface will be as follows:

Under normal conditions the heat lost from 1 square foot of water surface during one hour when the difference in temperature between the water and the surrounding air is 1° F., is equivalent to 1.0853 heat units. Consequently under the above conditions we have the total heat lost to be 1.0853 × 38.5 × 150 = 6,267 heat units. This loss must be added to the quantity of heat required to raise the temperature of the water in the first place from 60 to 210, giving a total of 1,506,267. If this total quantity of heat units is now divided by 1,189, which factor is the total heat in a pound of steam, the result, 1,267 pounds, is the quantity of steam at 100 pounds pressure required.

This figure does not take into consideration certain corrections which are necessary where extreme accuracy is required, but which lead to rather involved mathematical equations if considered, and for practical purposes the effect will not be to change the amount very largely. For example, the radiation of the heat takes place not only during the hour that the water is maintained at a temperature of 210°, but it has been constantly going on during the time the water is being heated and the amount of radiation has been gradually increasing with the temperature of the water. Again, the factor 1.0853 which is given in text books as the quantity of heat radiated from one square foot of water in one hour when the difference in temperature between the water and the surrounding air is 1°, is a factor which is only approximately true when the water is at a comparatively low temperature, that is, much below its boiling point; but when the water is raised to 210° F. it is just under the boiling point, and the amount of heat radiated will be proportionately greater, as there will also be a considerable quantity of steam coming from the water.

A further correction would have to be made in a very accurate calculation to account for the heat used up in the evaporation of the water, especially when it is approaching its highest temperature.

Furthermore, another correction enters into the calculation to allow for the water added to the tub by the condensation of the steam used in heating it. All of these calculations involve the highest form of mathematics to deduce theoretically and since the conditions in practice are so varying, it would be impossible to solve a theoretically accurate mathematical equation to account for all these factors unless a certain set of

standard conditions be adopted, such as for instance, the rate of flow of the steam into the water, the rate of evaporation of the water from the surface depending not only on its increase in temperature, but also on the question of air currents passing over the surface and also on the moisture and temperature of the air with which the water comes in contact. For practical purposes, however, the approximate figure which we have given will be sufficient.

J. M. Matthews.

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BLEACHING TURKISH TOWELS

Editor Textile World Record:

Can you tell us why we cannot get a good bleach on one of our styles of Turkish towels? It is the heaviest towel we make, weighing seven pounds to the dozen. We usually boil these out for five or six hours, but cannot obtain a good bleach. The yarn we use seems to have a reddish color when compared with our other yarns. The process of bleaching is as follows:

1. Boiling out 4 1/2 to 6 hours.
2. Chloride of lime bath (Gresheim Tw. 1 1/2° to 2°) 12 hours.
3. Fresh water bath.
4. Sulphuric acid bath, 1° to 1 1/2° Tw.
5. Following with two fresh water baths. Last water bath contains a little bluing.

Dexter (1993).

It is evident that the samples of Turkish towels are not thoroughly boiled, or what is termed in the trade, bottomed in the boiling process. The color of the goods indicate this and the fact that they are of a reddish color speaks for itself. They should be bottomed in the boil, otherwise the chemic or chloride will have no effect on the cloth. There is a certain kind of cotton that is naturally dark, and any amount of boiling and bleaching will not produce a clear white. This class of cotton grows in swampy or marshy ground. The cotton in the samples submitted is not dark and a pure white can be obtained if the right bleaching methods are used. "Dexter" gives the method used, but does not state what quantity of caustic is used in the boiling process. If a pure white is desired the following process will give good results: Keep all the cloth that is heavy in one kier and do not run it in with the lighter goods. Increase the quantity of caustic in the boiling process to 1 per cent. of the amount of cloth in the kier and boil at least 8 hours.

The other operations mentioned by "Dexter" are all right, but I advise trying my method first and see if the desired white is not obtained in one boiling. When doing this examine the color of the discharge liquor from the kier. If it is very dark in color see that the goods are thoroughly washed before putting them in the chlorine bath. Then follow with the usual process, watching the goods in the chlorine to see if they whiten any quicker after a longer boil. If the goods are not made white enough by using this process, then try the following method: When the goods are run in the kier, dissolve from 2 to 4 per cent. of caustic to every 100 pounds of goods in the kier; cover the goods with this liquor, boil for 6 hours; discharge the liquor, washing the goods well in the kier. Have ready a solution of soda ash, giving 2 to 3 pounds of ash to every 100 pounds of goods. Cover the goods in the kier with this solution and boil for 4 hours more. When discharging this liquor, note the difference in the color of the two liquors. Wash out of the kier in the usual manner, but watch the chlorine bath. From 1/2° to 1° Tw. should be strong enough to produce the desired white and it will not be necessary to leave the goods in this bath so long; from 4 to 6 hours ought to be long enough. This knowledge is gained by experience and after a few lots are bleached it will be easy to determine the time it will require to give the desired result. It is not necessary to have the acid bath as strong as in the old method. This might seem a long time to boil the goods, and "Dexter" might think it too expensive to adopt this method, but if he tries it for one month, noting the cost of each method, and watches the results, he will find that he is getting a better white without any extra cost, and with no reduction in output. The saving made in chlorine and acid alone will more than compensate for the extra coal used to produce steam for the extra boiling required. The time saved in the chlorine bath will cover the extra time required in the boil, assuming, of course, that a better white is wanted with as little increase in cost as possible and with no loss in the amount of production.

A good test to determine whether the goods are thoroughly bottomed is what is known as the ink test. Dip a pen in ink, and then throw a drop on the goods. If it spreads like a drop on a blotting paper, the goods are thoroughly bleached; if not there is foreign matter in the cotton that prevents it absorbing the ink. Try this on two samples like those submitted and see the difference in the two pieces. On account of the toweling being raised it might be necessary to press the spot of ink between the finger and thumb to make it sink into the cloth, but the difference will show in the tests. If these directions are followed the difficulty will be overcome without increasing the expenditure or injuring the production.

Delco.

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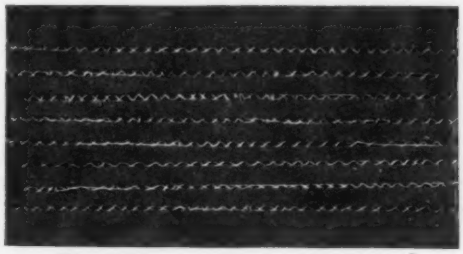
SPLICED HORSEHAIR CLOTH

Editor Textile World Record:

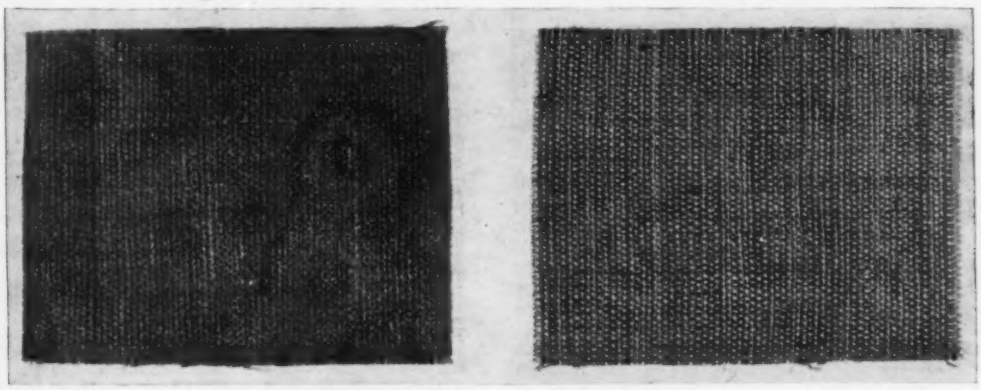
In further reference to your articles contained in the February and October, 1909, issues, can you tell me who are the English spinners of the spliced horsehair used in this patent interlining and whether the process or machinery is protected by United States patents? Narragansett (1133).

Edward Webb & Sons, Ltd., of Worcester, Eng., are the makers and patentees of this yarn. They inform me that the article is patented both in the United States and Canada and that up to the present time it is not made in either country. They are open either to supply the yarn or to sell the machines. The cloth is being extensively sold under the registered name of "Laptair." I enclose two samples, Nos. 3 and 4. No. 3 is "Laptair Cotton" (with a cotton filling), and No. 4 is "Laptair Wool" with a worsted filling, also a sample of the yarn. The fabrics enclosed are an improvement upon the cloth previously sent and illustrated in the Textile World Record for October.

It may be of interest to add that there are other patented methods of making quasi-continuous horsehair yarn and a search of the United States patent files would doubtless reveal several. The English patent 9432 of 1906 discloses a method invented by Hubert Severen, Muenchen-Gladbach, Germany. He employs fliers to wind cotton binding threads around lengths of horsehair which are being continuously fed through a central tube. Severen causes the binder to adhere to the hair by means of an adhesive. English patent 15,475 of 1905 covers the invention of William Oddy, of Bradford. Oddy makes a compound thread of horsehair and cotton or wool. He slows down a worsted spinning frame to about three-quarters speed and spins rovings into which horsehair of from 4 to 12 inches in length are being fed in series. In adjusting his "ratch" Oddy has regard only to the length



SAMPLE OF HORSEHAIR YARN.



SAMPLES OF HORSEHAIR CLOTH, NOS. 3 AND 4

of the worsted or cotton, not of the horsehair. Some of Oddy's cloth has certainly been sold, but it is apparently Webb's that is at present most successful in England.

Wessex.

We have analyzed the two samples which accompanied the reply to "Narragansett's" question, and find the construction to be as follows, the sizes being for the yarn as it lies in the cloth:

No. 3. Laptair Cotton.

Warp, 28 threads per inch. Two fine cotton threads twisted around the hair. 3,948 yards per pound.

Filling, 49 threads 2/33s cotton per inch.

Weight, 6.1 ozs. per square yard.

Weave, plain.

No. 4. Laptair Wool.

Warp, 28 threads per inch. Two fine cotton threads twisted around the hair. 5,796 yards per pound.

Filling, 48 threads 2/26s worsted per inch.

Weight, 6.6 ozs. per square yard.

Weave, plain.

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VARIATION IN WOOL YARN

Editor Textile World Record:

In working low shoddy work, a stock containing a large percentage of clean and dirty card waste, the dirty card waste, however, being thoroughly cleaned and dusted before used, what variation would it be considered fair to allow the carder on his yarns, taking, for instance, 165 grains or 1 15/16 runs and 105 grains or 1 1/16 runs? We would also like to have the same question answered in regard to yarns ranging from 90 to 105 grains, and made of clean, low grade stocks which contain either a small percentage of cotton or wool as a basis.

In order that you may be able to judge better and give a more accurate answer we give you the following information regarding our equipment: Our picker house is equipped with a Sargent duster and a Fearnaught picker, the mixes being run through the picker three times in order to insure proper mixing. The card room contains six sets of cards, practically new clothing on all, with Bramwell feeds and Apperly feeds between the first and second breakers, the second breaker and finisher hitched together, and Barker rubs on finisher. Carder (1989).

For the 165 grains, ten grains variation would be the extreme. For the 105 grains, eight grains ought to cover the variation. For the clean stock, 90 to 105 grains, four or five grains ought to be enough variation. In making this statement I only estimate the variation at the card; the mule is not considered. Lytton.

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CORE YARN

Editor Textile World Record:

We are interested in ascertaining the different methods by which core yarn is made. This is a yarn consisting of a cotton thread covered with a wool roving and we understand there are various methods of putting the two materials together. Can you give us some information on this point? Ramsay (1994).

The reply to the above question appears in the form of an article by Robert Dantzer on core yarn in another part of this issue. The samples sent to M. Dantzer and to which he refers were made as he states with a cotton core and a carded wool covering. They were made on an experimental scale by passing the cotton through the rub roll condensers of a finisher card. The work did not go beyond the experimental stage.

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NUMBERING ARTIFICIAL SILK

Editor Textile World Record:

How is artificial silk numbered in Europe? Yarn Count (1999).

Artificial silk, like natural silk, is numbered by the denier system which indicates the weight in deniers of 400 aunes. The denier is an old French weight, 533 1/3 deniers being equal to 1 ounce avoirdupois. The aune is an old French unit of length equal to 1.3014 yards. This denier system for numbering silk is as old as the European silk industry and so firmly established as to defy all attempts to abolish it, whether by private individuals, trade associations or governments. Our French correspondent to whom "Yarn Count's" question was referred replies as follows:

"Artificial silk is numbered the same as natural silk, the number indicating the weight in deniers (.05313 grams) of a fixed length of 500 meters. The metric system of numbering silk to indicate the weight in demi-decigrams has not yet come into use."

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STAMPING INK

Editor Textile World Record:

Some months ago you published a receipt for making stamping ink. Will you kindly send us this receipt? Weymouth (1997).

These recipes were published in our February and December, 1911, issues.

Knitting Department

THE KNIT GOODS SITUATION

Practically all of the initial buying by jobbers of underwear for the fall season of 1912 has been completed, and a careful resume of the situation shows that the business placed does not total up quite so well as was mentioned in our last review. It now looks as if only 60 per cent. of the year's production has, as yet, been contracted for. It is true that there are some few manufacturers who have sold a much larger percentage of their output, but there are also quite a number who have not sold more than 50 per cent., so that a general average of about 60 per cent. seems to hold good.

In addition to this unsatisfactory proportion, there is a more disagreeable fact, and that is that much of the business has been taken at too low prices. Men's fleeces and ribbed goods in particular have been sold at lower prices this year than they were a few years ago when cotton was only seven to eight cents a pound; and now that there is an upward tendency in the cost of raw material, the outlook for those manufacturers who sold at low prices is not bright. Another class of merchandise that has been sold at very low prices is women's 50-cent ribbed goods. The fact of the matter is that, on account of the low price of cotton, some exceptionally good numbers are being shown in 25-cent grades, and this has had its effect on the better end. Some very well trimmed numbers, made of combed yarn and weighing eight pounds to the dozen, are now being quoted as low as $3.25; and those made with a hand trimming are being sold at $3.50.

We are glad to note that there was, at least, a small advance in prices made since the season opened. The line of men's fleeced goods that were sold last month at $2.92 1/2 have now been advanced to $3.00; and it is understood that some of the lines of fleeces that were sold at $3.10 and $3.12 1/2 are being quoted at $3.20. Men's ribbed goods have sold very well for fall, but there seems to be a tendency on the part of the retailers to ask for something better than the 12-pound goods that are now on the market. They claim that even the two-thread lines that have been sold at $3.37 1/2 and $3.40 are not good enough for the best trade; and it is believed that the manufacturer who is in a position to put out something especially attractive in the way of a garment to run 12 to 13 pounds would have no difficulty in getting plenty of business. This garment might be built up by putting in shoulder pieces, extension straps on the drawer bands, and by putting on cuffs and anklets.

The increasing popularity of men's combination suits has caused manufacturers to make every effort to perfect this style of garment and improvements have been made from time to time until now there are several lines that are claimed to be perfect fitting. Practically all of these manufacturers are now making a closed crotch suit, about which there is considerable discussion. Many buyers have begun to ask for suits made with drop seats, similar to those made for children's lines. On account of the extra cost of making, most manufacturers avoided putting these in the line, but by experimenting, it was found that a garment could be made with a closed crotch which met all requirements, and several different patents have been issued covering garments so made.

Recently, a circular letter signed by The Atlas Knitting Company, Piqua Hosiery Co., Chalmers Knitting Co., E. M. Townsend & Co., Wm. Iselin & Co., Wright's Health Underwear Co., Utica Knitting Company, Oneita Knitting Company, Roxford Knitting Company, and Bliss, Fabyan & Company has been issued to the jobbing trade, in which it is set forth that the suits distributed by these different concerns were not an infringement on the Cooper patent, and also that the signers were ready to defend their

customers from any annoyance or hindrances in selling any of their lines.

A heavy demand has been noticed during the past month or two for women's combination suits made with low neck and with elbow length sleeves. Manufacturers of both cotton and wool lines in heavy weights have received many orders for suits made in this way, and the jobbers report that they are booking considerable business for elbow length sleeves in both high and low necks.

HOSIERY

The past month has been a fairly active one in the hosiery market. Weather conditions have been such as to enable retailers to clean up their stock in heavy cottons, fleeces and wools, and some of the buyers who were in the market in January and operated so sparingly on fall lines, have already sent in additional business.

Considerable activity is also noticed in the demand for light weights in nearly all staple lines. It will be remembered that buyers placed their early orders on light weights in a very gingerly manner. As a consequence, they have been obliged to duplicate much earlier than usual, and it is not unusual now to find manufacturers who have all the orders they can take care of up to the first of May. There is a feeling among some of the largest factors in the trade that there will be a shortage of desirable lines before many weeks.

Fleeced hosiery made with a ribbed top have sold very freely, and several manufacturers state that they have all the orders that their ribbed top machinery will take care of for fall delivery. Jobbers tell us that some of their trade hesitate to place hosiery orders with prices only 5 to 7 1/2 cents a dozen lower than last year, saying there are reductions on many lines of underwear of from 12 1/2 to 25 cents a dozen, apparently forgetting that a lowering of the price of cotton 3 cents a pound enables the underwear manufacturers making a 7-pound vest at $2.00 to make much more of a reduction than the hosiery manufacturers, who are turning out a 2-pound stocking at $2.00.

The demand for tan hosiery has been active during the past month and there is every indication that tans will constitute a large part of the hosiery business for the coming season.

The craze for silk hosiery continues and while there are many who have predicted all kinds of trouble when the season opens, yet many of these goods have already been delivered and the demand shows no signs of abatement. Possibly, by the end of this season, the public will be ready to return to mercerized lines.

SWEATERS

This article of wear is growing more in popularity each day, and, as a consequence, there has been a great increase in the number of manufacturers and distributors. While there is at present some complaint on the amount of business each one is receiving, it must be admitted that the sweater business of the country is aggregating in much larger volume than ever before. It is reported that the business on the lower priced coats has fallen off during the past season. While great quantities of cotton coats for men in particular have been sold for several seasons at from 50 cents to $1.50 each, there is now scarcely any demand for this class of goods. Garments to retail at from $2.50 up to $7.50 each occupy a very strong position. In men's coats, the call has turned largely to those with high collars of some sort or another. In some localities, the Byron collar is taken very freely, and in another, the call is almost entirely for the so-called "Roughneck" or storm collar. In the North and Northwest, great demand is noticed for hunters' style coats. These are made with a very high Byron collar and with three sateen-lined pockets, and are being sold by several manufacturers at from $24.00 to $48.00 a dozen.

The more staple lines are sold largely in Oxford grey, maroons, a few navys and tans and the hunting coats are being sold in cardinals, greens and browns.

There has sprung up a good demand for shaker knit coats during the past season and it is noticed that there is now on the market

shaker coats at very low prices. We recall one shown by the Gilbert Knitting Company at $15.00 a dozen with a shawl collar. There are also several lines being shown at from $18.00 to $24.00 with Byron collars, but to get a shaker-knit coat that will prove satisfactory to the consumer, it is necessary to pay about $27.00 a dozen. The Puritan Knitting Company of Philadelphia is showing a cardigan stitch garment made with an adjustable collar. This may be turned inside, if desired, making a regular V-necked garment, or the collar may be turned up and fastened with snap buttons and a throat latch, if desired. The Capital Knitting Company is showing one made with a detachable collar which gives the advantage to the wearer of both V-neck or high collared garment, as desired.

The trade for women's coats has developed largely into a call for plain stitch and with high storm collars. Some of these are so constructed that they could be rolled down, presenting a neat shawl collar appearance for mild weather, if desired. One of the novelties is a plain cardigan stitch coat, finished with knit frogs, making a military appearance. Other novelties being shown consist of the imitation Angora jackets in brown, green and heather mixtures, and some of these are being made with satin lining, being as high as $96.00 a dozen. Coats for boys and misses show that they are imitating their elders, and salesmen report that 90 per cent. of their business is for these garments—with high collars, mostly Byron.

SULPHUR SMELL

Editor Textile World Record:

Can you inform me what will take the sulphur smell out of knit goods after the goods have been sulphur bleached? Washing seems to darken the goods. Claxon (1991).

I have had a great deal of trouble with sulphur bleached goods and have tried a number of remedies, but found the following to be the best: Wash off with 3 per cent. of sulphuric acid with plenty of cold water. This will brighten the goods and free them from the sulphur smell. Dryden.

MAKING SWEATER COATS ON FLAT KNITTING MACHINES

BY DENNISON

The number of needles and rounds required to make a given measurement will vary according to the set of the stitch. The size, quality, twist and condition of yarn all have a bearing on the result. The sweater shown in the illustration is taken from a size 40 garment made of two threads of 2/20s worsted yarn on a machine cut 5 1/2 needles to the inch. Eighty-seven needles

A SWEATER COAT MADE ON A FLAT KNITTING MACHINE.

are set both back and front, putting the center needle down on the face of the goods until the shoulder is reached. Knit 20 racks, 246 rounds, 6 racks, then put center needle up. Knit 3 rounds to form center of shoulder, then 6 racks, 238 rounds, 20 racks, 3 rounds. This completes the knitting of the body. The front side is knit about an inch longer than the back so that when the garment is finished the fronts will have a dip without stretching the fabric when putting on the strip. The three extra rounds on the

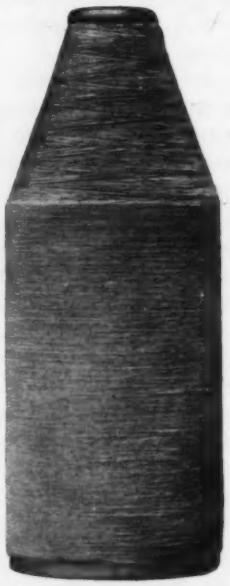
last end of the garment are to guard against raveling back and spoiling the racks, and are taken off in finishing. The center needle is left down until the shoulder is reached, making a line to cut on and a better edge to sew on than when the needle is in operation.

When making the sleeves, start at the cuff, setting 52 needles both front and back. Set the stitch tight enough to make a good elastic cuff stitch. After putting in the starting comb, put a welt in by knitting over and back on one set of needles. This is done by throwing the lock on one side of the machine out of work. This makes a better edge than by starting with a rack. Put the lock in action and knit 25 rounds. Change the stitch to correspond with the body stitch. Knit 12 rounds. Widen 5 times with 6 rounds, between each widening 1 time by 75 rounds, 2 times by 15 rounds. Set the tensions on the cuff stitch. Knit 3 rounds and press off. The 3 rounds of tight stitches saves the sleeve from raveling back and are taken off after the sleeve has been set on the looper. The strip or band is made on a small circular machine. This is a very simple machine with cylinder only. It will produce strip enough in an hour for a dozen garments.

The last end leaves an open stitch which is finished by hand, using the same kind of yarn as that in the body. Raveling the three extra rounds will supply plenty of yarn for the hand sewing. The needle is put through each stitch like overcasting. This stitch should be put in loose enough to prevent it breaking when the garment is stretched. A V-shaped pattern measuring 5 1/2 by 9 inches is used for the neck opening. The garment is cut up the front on the line made by the needle out of operation following the V mark. The strip is sewed on with a zig-zag machine butting the 2 edges together. Then it is cover seamed, the sleeves are looped in and the sides and sleeves are seamed. The seams having a selvage edge do not need cover-seaming. A piece of stiffening is put in the strip to reinforce the buttons and button-holes. It is marked for buttons and button-holes. The button-holes are then made by machine, the bottom ends of the strip are finished by hand, and the buttons sewed on. The garment is thoroughly inspected for menders, loose ends of machine work tacked, and is then ready to box.

THE "UNIVERSAL" WINDER FOR KNITTING YARN

An attachment recently brought out by the Universal Winding Co., 95 South St., Boston, Mass., for their No. 90 broad goods filling winder, makes it possible to wind a small bottle bobbin 2 3/8 inches in diameter and 9 1/2 inches in length. This makes the winder suitable for the use of knitters and a number of the machines have been equipped for winding splicing yarn. The illustration



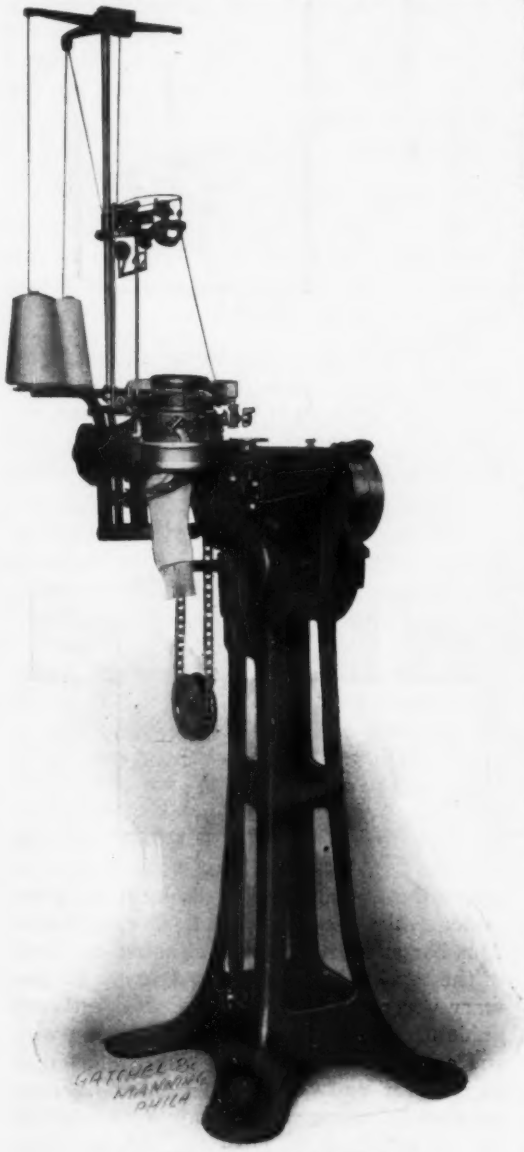
"UNIVERSAL" BOBBIN FOR KNITTING YARN.

shows a bobbin of the above dimensions containing approximately 1/2 pound of fine yarn, and which appears to meet exactly the particular requirements of the knitting trade. A valuable feature is the crossing of the yarn several times between the nose and the base of the bobbin. This affects the ballooning so as to obviate the possibility of the yarn clinging to the spindle when the supply is nearly exhausted. The No. 90 Universal winder is self-oiling and made of the best material. As a result it is very durable and

the cost of repairs is reduced to a minimum. Further information regarding this device can be obtained on application to the builders.

AN AUTOMATIC NECKTIE KNITTER

The illustration shows the automatic necktie knitting machine built by the H. Brinton Co., 213 Race St., Philadelphia, Pa. This machine is built specially for the manufacture of knitted scarfs, and is adapted for all kinds of tubular knitted ties, in plain, accordion and fancy effects with horizontal, vertical and spiral stripes.



AN AUTOMATIC NECKTIE KNITTER.

The production varies somewhat according to the pattern, running from seven to eighteen dozen per day. Plain and accordion ties are made without pattern wheels, but the greater number require these wheels, and it is but the work of a moment to change from one pattern to another. One pattern wheel is furnished with each machine and additional ones may be obtained for a small charge. Most of the crochet or fancy effects are made on 49-needle cylinders, but the cylinders may be made finer or coarser as desired. The accordion ties are usually made on a 100-needle cylinder.

YARN DAMPENING DEVICE FOR KNITTING MACHINES

This attachment, recently patented in this country, has for its object the dampening or lubricating of yarn to facilitate the knitting process and prevent breakage. Fig. 1 is a side view of the dampener; Fig. 2 is a vertical longitudinal section; Fig. 3 is a vertical transverse section; Figs. 4 and 5 are enlarged detail sections taken at right angles to each other through the float feed device and yarn guide.

A tank contains the dampening or lubricating liquid, which may be of any desired character. The reservoir is preferably of oblong rectangular form and provided at one end with hooks for attaching it to the knitting machine. At the end of the reservoir is also arranged a guide for the yarn, this guide being used when the thread spool is set at a higher level than the reservoir. At the opposite end of the tank is a transverse bearing rib or wiper over which the dampened thread passes to the knitting machine.

A pair of upright supporting pins having pointed free ends support a fabric wiper or absorbent strip adapted for operation in conjunction with the wiper rib to take up and absorb from the yarn any excess moisture

which may be present. The absorbent strip is supported, as shown, by impaling it upon the pins, where it may be easily replaced by a new strip whenever necessary. By the use

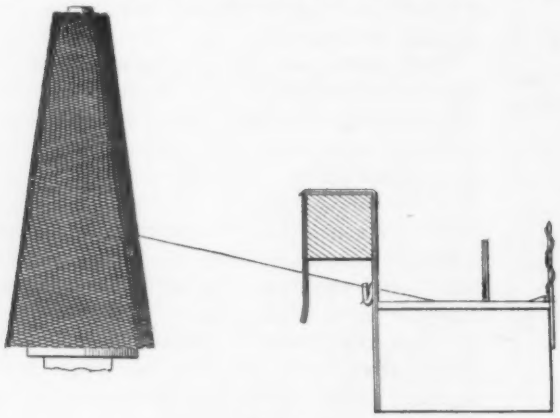


FIG. 1.

material having buoyant properties sufficient to support the body in the liquid so that the upper surface of the top plate will be level with the surface of the liquid.

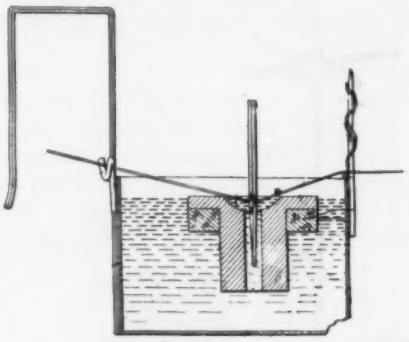


FIG. 2

of these wipers in conjunction with the float feed dampening device the yarn is dampened only to a sufficient degree to make it readily pliable so that it can be properly handled by the knitting mechanism.

The tubular extension forms a passage for the feed of the liquid to a channel formed in the upper surface of the top plate, and the side walls of the channel are provided with retaining grooves. Extending transversely

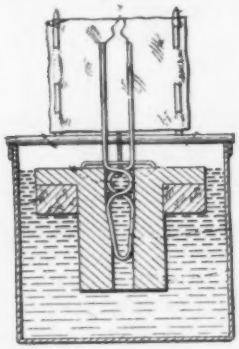


FIG. 3.

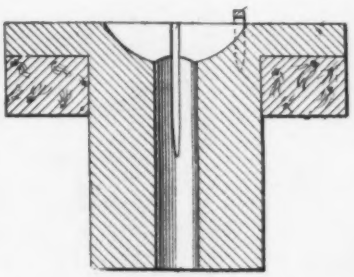


FIG. 4.

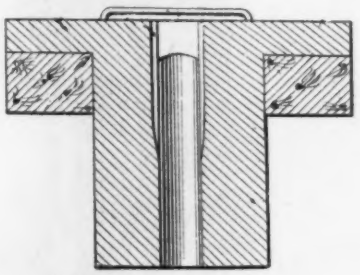


FIG. 5.

Disposed within the tank is a float of such size with relation to the tank as to have free movement to rise and fall with the dampening or lubricating liquid. This float is composed of a top plate having a depending tubular extension and a bottom plate secured to the top and surrounding the tubular extension. The top plate and its extension are formed in whole or part of a non-absorbent, moisture-shedding material, while the bottom plate is composed of cork or other suitable

above the forward end of the gutter is a bar under which the moistened thread passes. This bar supports the thread above the level of the top of the float and operates as a primary wiper. Carried by the float is a thread guide formed of a single piece of spring wire and comprising a pair of arms, connected at their lower ends to provide a pair of jaws, adapted to engage the grooves to support the thread guide in position. Above these jaws the wire is formed with oppositely bent

and crossed loops or offsets to provide a passage for the feeding thread. Above the loops the free ends of the wire are projected to form finger pieces. By compressing these finger pieces the jaws may be retracted or drawn inwardly toward each other to free them from engagement with the grooves, allowing the guide to be detached or adjusted vertically to raise or lower the eye, so that the feeding thread may be caused to dip to a greater extent in the liquid. The forward end of the float is provided with suitable stop pins or projections to engage the front wall of the tank and thus limit the forward movement of the float under the pull of the feeding thread.

The thread may be engaged with and disengaged from the eye or passage by sliding it down or up between the arms of the guide member. In its passage through the dampening device it will take up more or less moisture from the gutter or well according to the position of adjustment of the eye. Provision is thus made for dampening the thread to the degree required and for varying the amount of saturation according to the character of the thread to be treated. If too much moisture should be taken up by the thread, all of the excess moisture will be absorbed by the wiper ribs and absorbent strip, so that the thread will pass to the knitting machine softened to the extent only to insure its free looping under the action of the knitting mechanism. As the supply of liquid is consumed, the float descends to maintain the same amount of liquid at all times in the gutter. Agitation of the liquid is avoided, thus preventing all loss or waste from the splashing of the liquid over the sides of the tank. Cleanliness of operation is thus insured and injury to the yarn and knitting mechanism from the dampening liquid avoided.

LENGTH OF HALF HOSE

Editor Textile World Record:

Are merino and wool socks manufactured in standard lengths? If so, what lengths? We know that the standard length should be 15 inches in a finished sock, but even on the very finest gauges of the high priced goods, very few of them are equal in length. How a mill making various mixes of wool and cotton in different percentages could produce a varied line of wool and merino half hose and expect them to finish up the same length, even if they start the same length on the machines, owing to the variation in shrinkage, is beyond me. We have had a number of buyers in the trade try to tell us that our very heavy weight socks, such as we are making a specialty of, ought to measure 17 inches from the bottom of the heel to the welt, and that our boxed goods, or light weight bundled goods should measure at least 15 inches between the same points. If we had some comments from a competent man to whom you refer such matters, we would be very grateful. Zanzibar (1964).

It is practically impossible to guarantee a uniform size when yarn is uneven. The only way is to proceed as of old. Pairers and folders do the best they can and do well as a rule. If getting out sample stock for instance, the pairers may go through 10 or even 20 dozen to pair off a sock before getting just what is wanted, but as for finishing up same length, it is beyond most of us, if not all of us. Get a standard length and keep as near as possible. We are not prepared to give actual measurements. The demand of buyers must govern that.

Kentland.

AN IMPROVED CIRCULAR KNITTING MACHINE

An improvement in circular knitting machines recently patented in this country relates to the method of removing the sinkers in and out of action with relation to the needles. The act of lifting the latch-ring, so-called, after stopping the machine as at the completion of a stocking, operates through intervening devices to move the corresponding sinkers out of the normal working position, all the sinkers then lying in a substantially true circular path and being inoperative. Upon applying the transfer-ring to the needle-cylinder preparatory to the "topping" operation the points of the ring readily position themselves at the rear of the respective needles. While the sinkers are in this position the cylinder with the transfer-ring thereon may be readily rotated at will in either direction by the attendant without liability of injury to the transfer-points by the sinkers.

Fig. 1 is an elevation of a knitting machine showing the improvement. Fig. 2 is a sec-

tional view taken through the center of the cylinder. Fig. 3 is a plan view. In the automatic stocking knitting machine shown

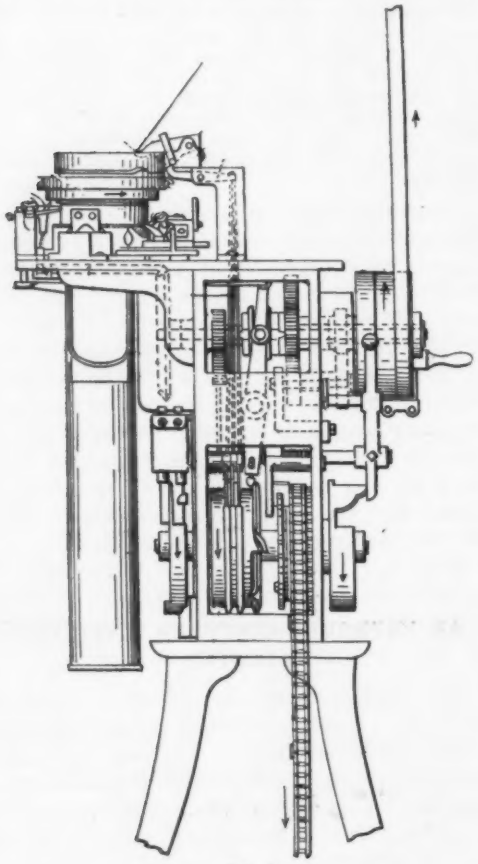


FIG. 1.

at Fig. 1, the knitting or needle-carrying cylinder revolves. The pattern-chain, as well as the wheels, mounted on the main or cam-shaft, are intermittingly rotated at intervals and in one direction only by means of controlling mechanism connected with devices through the medium of which the cylinder is rotated at a relatively increased rate of speed while plain or continuous circular knitting is being produced and revolved at a greatly reduced speed while being actuated in a rotary-reciprocating manner during the formation and production of the heel and toe portions of the stocking.

After lifting the latch-ring (the machine then being temporarily stopped) together with the yarn-guides and pin connected therewith, the spring instantly acts to move the cam and its sinkers toward the center, thus placing the sinkers in the inoperative position. At the same time the attendant presses down the few needles then remaining elevated at the knitting point to the level of the other needles, followed by placing the transfer-ring, with the stitches or loops of the previously knitted "top" mounted as usual on its grooved points or "quills," in the proper position on the upper end of the needle-cylinder, the points then registering with the respective needles. Immediately thereafter the attendant revolves the cylinder one turn by hand, thereby moving all the needles upwardly a short distance into the transfer-ring's points, followed by simultaneously pulling the "top" downwardly and removing the ring. The result of this action is to slide all the stitches down over the needles and to open any closed latches, all the latter then being open and in contact with the respective loops of the "top." The operator next swings the latch-ring down to its normal or level position, carrying with it the yarn-guides, the latter, assuming the several members to be properly arranged and adjusted, drops to the dotted line position shown in Fig. 2 to successively introduce the yarn into the open hooks of the needles upon starting the machine.

The latch-ring automatically introduces the wedge-pin into the space shown, thus forcing the cam out from the concentric or inoperative position to the normal working position, the cam at the same time carrying with it the several sinkers and forming with the cams the cam-shaped path, Fig. 2. It is at this part of the machine that the stitches are formed. Upon lifting the latch, Fig. 1, the spring-pressed shipper-arm moves inwardly and shifts the driving-belt from the idle pulley onto the quick-speed pulley, thereby starting the machine.

The cooperation of the revolving cylinder, the sinkers, the needles, vertically actuated by suitable cams mounted in the cam-block, and the position sinker-actuating cam cause the needles to receive in the open hooks the suitably tensioned yarn passing through the

eye of the depressed guide, thus converting the yarn into new loops or stitches and knitting them into the loops of the "top" and immediately thereafter casting them off from the top of the needles in the usual manner (the latches then being closed) into the "top" or web revolving with the cylinder.

respect to the hooks of the needles. The continued one or two revolutions of the cylinder operate to elevate all the needles through the last formed loops to the upper normal level, thereby freeing the loops from the hooks and opening the latches, the bottom of free ends of the latter then being

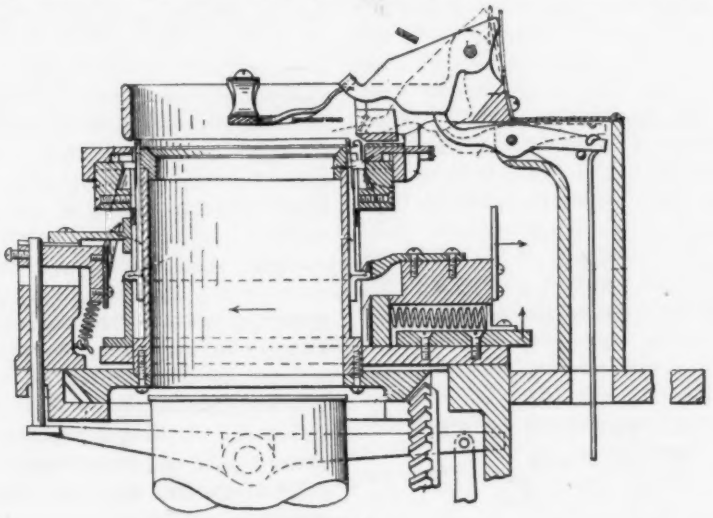


FIG. 2.

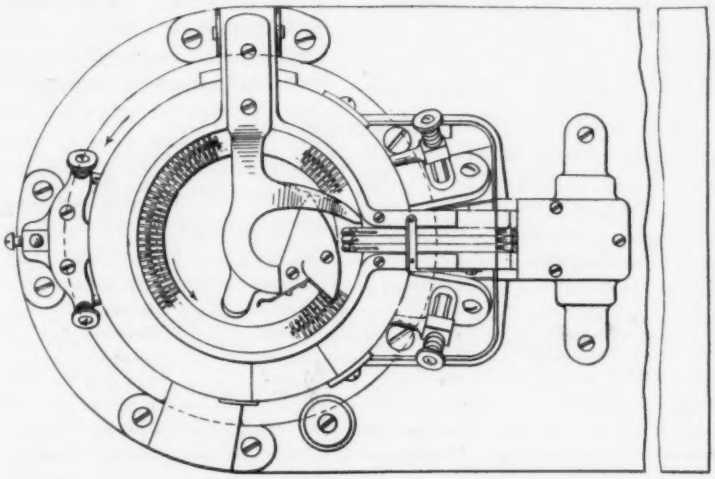


FIG. 3.

The mechanism is so arranged, positioned and timed that the yarn-guide is automatically elevated, thereby placing the knitting-yarn, or yarns, out of knitting action with above the loops, the final action successively depressing the needles through the loops, closing the latches and casting the loops off over the top end of the then closed

hooks, thus automatically stripping the thus completed stocking from the needles, the work still being connected with the knitting yarn. At the same instant the shipper is mechanically actuated and shifts the continuously running driving belt back onto the idle pulley, stopping the machine. Upon elevating the latch-ring, thereby withdrawing the pin, the action of spring forces the cam, together with the sinkers supported thereon, inwardly to its limit, thus moving the sinkers to the inoperative position. The cam is returned to its normal operative position by means of the pin of the latch-ring upon dropping the latter, together with the yarn-guides mounted thereon, to the normal horizontal position represented in Figs. 1, 2 and 3.

ESTIMATING THE COST OF KNIT UNDERWEAR

BY ONOTA

Estimates of the cost of knit underwear should be based on the spun yarn as raw material. The cost of the yarn is determined separately, either from the invoices when the yarn is bought, or by separate estimates when the yarn is spun in the mill where the knit goods are made. About 10 per cent. should be allowed for knitted, spun and other waste between the spun yarn and the finished goods. All piece work should be separated from the other charges and added to the cost of the yarn. Then the day labor and the general charges should be divided by the number of dozen produced. The average cost thus obtained is added to the amount already estimated. The cost per dozen for trimmings can be easily calculated by measuring the amount of trimmings used. The buttons are calculated by count; the thread, by weight. The other fixed charges, which must be averaged on the general production, include cost of boxes, cases, freight, cartage, rent, fuel, taxes, insurance, light, water, etc. The average for these charges is obtained, as in the case of the general charges for day labor, by dividing the total amount by the number of dozen produced. Ten per cent. of the total estimate should be added for incidental expenses such as stationery, postage, loss, repairs, etc.

By deducting the trade discount and the commission from the selling price the net yield of the goods to the mill is found, and the difference between that and the estimated cost gives the estimated profit. A blank for estimating the cost of underwear is shown below. The items would have to be changed to suit the requirements of different mills and different kinds of goods. Those given are for spring needle work:

ESTIMATE BLANK

Style..... Price per Lb.....

Kind of Yarn..... Weight per Doz.....
(Including 10% for waste)

Piece Labor.	Day Labor.	Expenses.	Materials.	Footing
Cutting.....	Knitting.....	Rent.....	Stock.....	Piece Labor.....
Marking.....	Winding.....	Power.....	Trimmings.....	Day Labor.....
Looping.....	Pressing.....	Heat.....	Buttons.....	Expenses.....
Seaming.....	Boxing.....	Water.....	Thread.....	Materials.....
Covering.....	Over-seers.....	Lights.....	Boxes.....	Total.....
Boarding.....	Other day.....	Freight.....	Cases.....	Add 10% for.....
Trimming.....	hands.....	Cartage.....	....	Incidentals.....
Finishing.....	.....	Ins. and Tax...	....	Postage, Stationery.....
Button-hole....	....	Interest.....	....	Losses, Breakag ,etc.....
Button-sew.....	....	.....	....	.....
Inspect.....	.....	.....	....	.....
Total	Total	Total	Total	Total Cost

Divide the total of Days Labor by average production in dozens per day to get cost of day labor per dozen.

Divide the total of Expenses by average production in dozens per day to get the expense per dozen.

Dyeing, Bleaching, Finishing, Etc.

SULPHUR COLORS ON COTTON

By LOUIS J. MATOS, Chemical Engineer

A previous article described the application of this group of dyestuffs to cotton in the raw state. The present article takes up the dyeing of piece goods with the same class of colors, but before going into details it will be necessary to consider the mechanical arrangements and appliances desirable for the work.

For most classes of cottons, especially plain or slightly figured weaves that are to be dyed medium or heavy shades, preliminary bleaching will be unnecessary, but for light and clear tones a half or full bleach may be necessary, the equipment for which will be none the less than is required for any plant doing regular bleaching and finishing. The details of such a plant need not be given here except to mention that it should be so laid out as to permit readily such variations in the bowking and bleaching as the particular goods demand.

Even for medium shades it is now becoming a matter of growing importance to prepare the goods properly so that when dyed and finished, they will show an even and uniform shade from end to end. The chief point to observe in preparing cotton goods for dyeing is to have them thoroughly freed from traces of any of the chemicals, including lime and soap used in the bowking and bleaching. It is of special importance to remove all traces of lime, which acts injuriously upon a number of dyes, and where present will show up in clouded or shaded areas. It is with this serious defect in view that many bleacheries are now using sodium hypochlorite as the bleaching agent instead of bleaching powder, although the former is readily and economically produced from the latter.

The dyehouse for cotton piece goods is equipped with either jiggers, padding machines, or continuous dyeing machines or both according to the nature of the work to be done, the latter, however, being most generally used for the dyeing of standard shades such as blacks and dark blues, for which there is a regular demand. For colors and mode shades, where the production is large, and where the demands for fastness is not too exacting, the use of the padding machine is to be recommended. I shall take up the use of each of these machines in order, and give typical dyeing recipes for standard shades.

Jigger dyeing is made use of very largely for heavy weight fabrics such as cotton ducks of all kinds, tent and awning material, cotton fabrics for sportsmen's garments, overshoe linings, etc. Such heavy fabrics are more readily handled in the jig than any other machine for the reason that several passages through the dye liquor are necessary in order to build up the shade to the proper depth, and also to ensure the degree of penetration required.

As many ducks are very tightly woven, it will always be a distinct advantage, if the goods have not been previously bleached, to wet them out on a jig by passing through a boiling bath containing about one pint of soluble oil or Turkey red oil for each 100 gallons of water. This oil passage loosens much of the dirt and other oils in the goods, and tends to secure penetration and even shades. The fabrics are then washed well, when they are ready for dyeing.

The jigger for middle weight ducks can be of the ordinary type, that is, so built that the winding beams are outside and over the dye liquor. For very heavy and coarse ducks, the best type of jigger is where the beams are always under the dye liquor, and will be found most advantageous for dyeing blacks or heavy blues or khaki for tent material. In actual dyeing, the strength of the dye bath is made up so that the proper shade is secured in from four to six runs. The volume of dye bath for an ordinary jigger is

from 30 to 50 gallons, and the quantity of cloth generally dyed should be such as to allow one pound for every quart of dye liquor—that is four pounds of material per gallon. Of course this ratio cannot always be maintained, but when it can, the dyeing proceeds more evenly. As a rule jigger dyeing implies continuous work on one shade for one or more days, and the dyer should establish a formula for the shade he desires, to be obtained in the fewest number of runs, proper penetration being secured, and working so that about two-thirds of the dye originally taken must be added for each succeeding batch. The following formula is from practice. Standing bath:

15 lbs. Immedial Black N N G Conc.
15 lbs. Crystal Sodium Sulphide.
1½ lbs. Soda Ash.
6 lbs. Common Salt.

Six ends are given at the boil. Squeeze thoroughly, and rinse until the wash water runs perfectly clear.

For the second and subsequent rolls to be dyed, the bath is replenished with the following:

10 lbs. Immedial Black N N G Conc.
10 lbs. Crystal Sodium Sulphide.
2½ ozs. Soda Ash.
1 lb. Common Salt.

For very heavy material, closely woven, weighing say 60 pounds per piece, dyed a dark blue in a jigger holding 40 gallons of liquor, the dye bath was made up as follows:

10 lbs. Immedial Direct Blue B Ext. Con.
30 lbs. Crystal Sodium Sulphide.
1½ lbs. Soda Ash.
5 lbs. Common Salt.

Give 6 ends at the boil.
Subsequent rolls are dyed with:

9 lbs. Immedial Direct Blue B Ext. Con.
15 lbs. Crystal Sodium Sulphide.
¾ lb. Soda Ash.
1 lb. Common Salt.

After dyeing the goods are thoroughly squeezed and passed through the rinsing jig. Squeezing the fabric on the jigger should not be a matter of indifference. If the squeeze rollers are not even for their entire length, uneven pressure will result, the effects of which will be apparent by the goods being lighter in shade towards the middle of the piece and the ends. Jigger dyeing of light fancy shades is done in the same manner as for heavy standards except that increased amounts of sodium sulphide are used and the quantity of common salt reduced or in some cases entirely omitted, bearing in mind that the harder the twist of the yarn used or the tighter the weave the larger will be the quantities of soluble oil required to facilitate penetration.

Many sulphur colors are slightly altered in shade and rendered very fast by a passage through a bath containing bluestone and bichromate—the so-called "aftertreatment." The bath is prepared as follows:

1½ lbs. Bluestone.
1½ lbs. Bichrome.
3 pts. Acetic Acid.

This bath is heated to 180° F. The fabric is given three passages and afterwards well rinsed. This treatment causes a very thorough fixation of the color.

DYEING ON A PADDING MACHINE

Padding is carried out on a machine which adapts itself to two methods. The first may be called the jigger dyeing method. The frame of the machine carries several heavy rollers, under which is placed the small tank for the dye liquor and which holds sufficient liquor to dye the several cuts of cloth the particular shade desired. This tank contains top and bottom guide rollers similar to a warp machine. After the fabric has passed up and down about 8 times, it is heavily squeezed, cuttled and thoroughly rinsed. The dye bath is made up exactly as for the jigger.

When dyeing cotton piece goods on a padding machine, a very small dye-liquor box or trough is used, near which is a stock dye tank heated by indirect steam. The fabric to be dyed passes under a roller in the dye trough, after which it passes between two

heavy squeeze rollers and is then cuttled. A constant level of dye liquor is maintained in the trough, the flow being regulated from the stock tank. This method of dyeing is applicable for light or medium shades as one run through the liquor generally suffices.

As will be seen from the above an immense output can be made on such a dyeing machine. Having once established the formula by trial, it becomes easy to prepare a stock solution with the necessary dyestuffs and chemicals so that when once starting there need be no occasion to stop. If the weighings have been accurate, the shade dyed at the beginning will match that obtained at the end of the day's run.

DYEING IN THE CONTINUOUS MACHINE

Dyeing in this apparatus is generally for blacks. The machine is of simple construction and consists of a large rectangular tank divided by partitions into two or more compartments. Over each partition are generally mounted a pair of squeeze rollers. Some types of this machine are equipped with a series of guide rollers in a frame over the tanks, and which serves as a "sky" to aid oxidation for such sulphur colors as are benefited by such treatment before washing. When the machine is divided into four compartments, as is most common, the first two are for dye liquor, while the remaining two are for washing, the last tank being always for fresh, clean water.

This method of dyeing is most commonly used for light weight fabrics, such as linings, sateens, etc., and are usually given only one passage. The dye bath being prepared for the first batch with a quantity of dyestuff and chemicals to give the proper depth of shade and based on each 100 gallon unit, while for each subsequent batch of goods the bath is replenished with a sufficient quantity of dyestuffs, etc., but calculated in percentages on the weight of the goods to be dyed as follows. Starting bath:

25 lbs. Immedial Black N N G Con.
25 lbs. Crystal Sodium Sulphide.
5 lbs. Soda Ash.
1 qt. Soluble Oil.
25 lbs. Salt.

Dissolve in 100 gallons of water.

For replenishing the bath during dyeing, the following items are dissolved and added, but calculated on the weight of the goods:

6½ per cent. Immedial Black N N G Conc.
6½ per cent. Crystal Sodium Sulphide.
½ per cent. Soda Ash.
½ per cent. Soluble Oil.
2 per cent. Salt.

The baths are boiling, and only one passage is necessary. Squeeze well and wash at once full width, squeeze and pass on to the driers.

The arrangement for a piece-goods dye house should be such that when working at its maximum, there should be no unnecessary delays of dyed material waiting to be handled. The one point to look out for is to have a sufficient number of washers ready as most of the defects are to be directly traced to imperfect washing.

Under ordinary circumstances, medium and heavy weight fabrics are not difficult to penetrate if sufficient time is given for the dye liquor to soak in, but it is a mistake for dyers to run heavy goods at the same rate of yardage per minute as that at which lighter fabrics are run, especially ducks. Again, washing alone is not sufficient to prepare the fabrics for proper finishing. As a rule after straight dyeing, or when an after treatment is carried out, a good soaping is desirable, as it not alone tends to clear up the shade but to give the fabric a full handle, especially where such goods are not heavily sized.

SIZING FOR BLACK COTTON YARN

Editor Textile World Record:

Can you give me a good recipe for sizing black cotton yarn in the dressing? Dresser (1969).

I would advise the following ingredients to be used for a sizing intended for black cotton yarn:

25 gals. water,
25 lbs. starch,
10 lbs. dextrin,

2 lbs. Turkey red oil,
1½ lbs. tallow.

Boil well for ten minutes. It is presumed that the yarn in question is in the form of a warp and that the sizing will be applied on a ball warp sizing machine, in which case only one run through the size should be given. This method of sizing black yarn leaves the color in a bright condition without decreasing its intensity. It also gives a fullness to the yarn and only a slight increase in weight.

J. Merritt Matthews.

LISTED PIECES

By P. F. CROSLAND, B. Sc.

Before the Huddersfield Textile Society

It will be well, I think, to start from a fundamental principle which, though rather obvious at first sight, should always be borne in mind. It is this—in order to obtain a uniform result in cloth manufacture or in any stage of that manufacture, such as dyeing or finishing, we must have in the first place, a uniform fabric, and in the second place, all parts of that fabric must be submitted under identical conditions to the same operations.

Let us consider the first condition in greater detail—the necessity for a uniform fabric. A friend of mine received a complaint about a raising machine which he had sold to a West-Riding manufacturer. This machine, he was told, was giving an irregular raising along one side of a piece, and giving it a listed appearance. He found the piece was badly listed apparently through irregular raising. He examined the raising machine, but found it in perfect working order and properly set. He then returned to the piece, took it to a good light and turned it over. Then on the unraised side—though much fainter—he saw the list was distinctly darker. That made it almost certain that the fault was not with the raising machine at all. The piece which left the loom after the piece in question was sent for, scoured carefully, and then brought up for inspection. In this case also the piece had a similar faint listed effect. The fault then was not due to the scourer even, and careful inquiry disclosed the fact that the weaver had used two different lots of yarn and, instead of mixing them up he had kept them separate; the yarn of the list was different from the body of the piece, and a defect was produced which only became plainly visible on raising.

I will now pass on to another fault, rather rarer, but more subtle and therefore more to be feared, which has been known to produce cloudy lists. In the case I have just dealt with, the use of different yarns produced an ordinary dark list, but in this second defect, a well scoured and perfectly dyed piece may show a listed effect if the fibers are irregularly arranged. This causes an irregular reflection of the light from the fibers to the eye which gives the piece a shady effect. A characteristic of this defect is that a slight alteration in the way the light falls upon the cloth causes a reverse effect, the parts which were dark now appearing light, and the parts which were light now appearing dark. If the fibers in one part of the fabric are arranged differently from the remainder—they will reflect light in different directions, thus producing shady places for which there is no remedy. The principal factor of course in determining the regularity of the arrangement of the fiber is the amount and direction of the twist inserted into the yarn during spinning, and cloudy pieces and listed effects are occasionally produced by using yarns of slightly different twist, or even by the use of unevenly twisted yarn.

Another fault is not due to the nature of the yarn, but to the way in which the yarn is woven. If in the weave the weft is thrown largely on to one side of the fabric, the cloth thus produced will, through lack of balance in the weave, have a tendency to roll in from that side. As soon as the rolling begins the compactness of the roll keeps the heat better and causes it to be more severely milled, thus inducing an increased felting. When dyed the fabric, being denser at the list, shows a shading effect towards the selvages, a fault for which either the scourer, the dyer, or both, are usually blamed. Cloths which show this tendency should be sewn selvage to selvage with the side to which the weft is thrown outwards, a device largely practiced in the West of England.

Another fault which automatically produces rolling during milling and eventually gives rise to listed pieces, is tight selvages. This fault though it produces exactly the same listed effect as unbalanced weave, can usually be distinguished from it, by the fact that during the milling the selvages are often damaged considerably. Tight selvages, moreover, even if they survive the milling operation all right, are always a source of danger and anxiety during the raising process, since the tight selvages causes the list of the piece to press more against the teasles, and thus gives rise to an irregular raising.

Slack selvages, on the other hand, produce just the opposite fault in each case. During the milling process, the selvages are thrown outwards in passing from the bottom of the mill to the rollers. Thus the lists get less milling, less felting is produced, resulting in a fabric less dense near the selvages, and finally giving a listed piece with the shading in the opposite direction. Again, in raising pieces with slack selvages the lists are usually less raised than the middle of the piece.

There can be no doubt whatever, that the scouring process, if inefficiently performed, is a most prolific cause of listed pieces, and in order to explain better how these faults may arise and how they can be prevented, I propose to discuss the real nature of the piece scouring operation. Loose wool is oiled to the extent of about 10 to 15 or even up to 20 per cent. to make it work easily in the spinning and weaving operations. For this purpose four different sorts of oil may be used. There is firstly, olive oil, of different qualities, a very good oil for the purpose. Secondly, there is what is generally known as cloth oil, a reddish brown oil, obtained as a by-product in candle making; from a scouring point of view it is quite as good as olive oil. Thirdly, there is wool oil, a complicated mixture containing olive oil, oleic acid and a large quantity of mineral oil. Fourthly, there are the mineral oils.

The elimination of these oils from wools depends on the fact that the alkali soda saponifies oleic acid, converting it into soap, which then emulsifies the insoluble oil. If the wool has been oiled with a mineral oil there is no possibility of the formation of a soap, and since alkali has no action on mineral oil, ordinary scouring with alkali is almost useless. It is therefore evident that we must have enough saponifiable oil present to form a soap in sufficient quantity to remove the whole of the mineral oil present. So the value of a wool oil hinges altogether on this fact: Is the quantity of saponifiable oil sufficiently great to form enough soap to emulsify and remove the unsaponifiable oil? The sellers of these spinning oils often guarantee 70 per cent. of saponifiable oil, and certainly any less quantity might easily result in bad work. Keeping these considerations in mind, we will now consider some of the ways in which inefficient scouring can produce listed effects.

The first cause is one for which the scourer is in no way to blame. All spinning oils on continued exposure to air are acted on by the oxygen of the air and converted into leathery films. For this reason it is very unwise to keep unscoured grey goods for any time in a warehouse, especially if exposed to a strong light and a moderate heat, and many cases have come to my notice where the oil along both lists of a piece has been oxidized to a leathery varnish, which is unaffected by the ordinary scouring agents, and a very bad piece results. As a rule a list of this kind usually only extends about one inch into the width of the piece, and is often accompanied by similar marks across the piece, where the cuttled edges have also been exposed. The dangers arising from insufficient scouring, I need not dwell on, for they are obvious enough.

A frequent source of unevenness is an insufficient rinsing after scouring which results in the scouring sud residue being left in the cloth to resist the dye afterwards, and with heavily milled goods the additional defect of uneven milling. Inefficient rinsing, too, occasionally results in alkali being left in the pieces. This, if the pieces are thrown over a horse or a narrow table, settles down to the lists, and produces not merely uneven dyeing, but also makes the wool hard and unkind to the handle and of an unsatisfactory luster.

(To be continued.)

THE "THIO INDIGO" VAT COLORS

Reviewing the work of the last few years in the coal tar industry, one cannot suppress the impression that the development of vat dyestuffs has made wonderful progress. It would seem superfluous to again call attention to the great result which the indigo synthesis has achieved, that today the natural product has been almost entirely replaced with the indigo artificially produced. Yet, this was only the beginning, as indigo remained, as before, the only vat color, and until recent date, had but one representation —indigo blue, which plays a comparatively isolated role not only in dyeing but also in scientific chemistry. At the present time we have knowledge not only of a number of vat dyestuffs, which behave similar to indigo, but also combinations of a very different composition which can be dyed by vat process.

In the last few years two ways have been tried of solving the problem of producing vat colors of different shades,—one in the direction of Anthraquinone (Indanthrene and Algols); the other and newer territory is that of Thio Indigoes (Kalle & Co., Inc.), which is of more recent date, and have been productive of most valuable results. The Anthraquinones (Indanthrene and Algols) dye cotton exclusively; the Thio Indigo group, on the contrary, like Indigo, are suitable in a like degree for dyeing animal as well as vegetable fiber (silk, wool, artificial silk, etc.), and have the characteristic fastness of the vat colors for both cotton, wool and silk, not only for dyeing but for printing.

The firm, Kalle & Co., Inc., has within the last few years brought out and placed upon the market a line of vat colors, especially distinguished by their fastness to light, chlorine and washing, viz:

Thio Indigo Orange R Paste Pat.
Thio Indigo Brown G Paste Pat.
Thio Indigo Brown 2 R Paste Pat.
Thio Indigo Brown 5 R Paste Pat.
Thio Indigo Scarlet S Paste Pat.
Thio Indigo Scarlet G Paste Pat.
Thio Indigo Scarlet R Paste Pat.
Thio Indigo Red B Paste Pat.
Thio Indigo Red 3 B Paste Pat.
Thio Indigo Red B G Paste Pat.
Thio Indigo Yellow Paste Pat.
Thio Indigo Rose A N Paste Pat.
Thio Indigo Rose B N Paste Pat.
Thio Indigo Green G Paste Pat.
Thio Indigo Violet B Paste Pat.
Thio Indigo Violet 2 B Paste Pat.
Thio Indigo Violet 2 R Paste Pat.
Thio Indigo Violet K Paste Pat.
Thio Indigo Blue 3 G N Powder.
Thio Indigo Grey 2 B Paste Pat.
Scarlet Salt 2 G Paste Pat.
Indigo K G Paste Pat.

Thio Indigo Red B Paste is especially recommended by the manufacturers not only as a self color, but when used in combination with Indigo when reddish shades of Indigo Blue are required in the manufacture of government or officer blues, particularly for wool goods. Whereas, when formerly to produce so-called reddish shades of Indigo Blue, the wool was previously mordanted and then dyed with Alizarine Red, and subsequently colored blue by vat process with Indigo, the same results may now be obtained by combining Thio Indigo Red B with Indigo itself, performing the whole dyeing operation by one process where Hydrosulphite vats are employed; thereby lessening not only the cost and protracted grounding with Alizarine Red, but giving the manufacturer his wool in such an improved condition that he not only can spin finer, stronger and better yarns, but also save considerable waste in the process of manufacture. It also claims the advantage over other so-called vat reds that it can be dyed in a vat of sulphide of sodium reduction, and in like manner in combination with any group of so-called Sulphur colors.

Thio Indigo Scarlets produce most beautiful shades of splendid fastness (both when printed and dyed) to all color-destroying influences, as do also Thio Indigo Browns, Yellow, Orange, Green, etc. Thio Indigo Violets and Rose are claimed to produce the fastest Violet, Heliotrope and Pink shades and can be employed for dyeing or printing animal and vegetable matter.

As already mentioned, Thio Indigoes and their derivatives, represent fast vat dyestuffs.

and the analogy with Indigo, which we find in the chemical structure, is also found in the technical use of the products, which are suitable for all textures of vegetable and animal origin as well as extreme fastness in dyeing and printing. The dyeing itself is the same as with Indigo because all means of reduction which serve for the preparation of the Indigo vat may also be used for the Thio Indigoes. Practically, however, the method is confined almost exclusively to hydrosulphite vat process, the most modern method of present day Indigo dyeing. By this process the use of so-called "fermentation" vats is eliminated. Yet, as before stated, Thio Indigoes and a few of their derivatives have the advantage of producing practical vats by the use of Sulphide of Sodium reduction.

For printing the Thio Indigoes are well adapted in marked degree. The printing paste is made by means of soda lye or caustic, hydrosulphite, industrial gum, wheat starch, and water. The white discharge on Thio Indigo printed fabrics is obtained by the use of hydrosulphite.

Considering, therefore, the many important features of this line of dyestuffs, it seems destined to become an important factor in the dyeing and printing field.

M. M. W.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 33

YELLOW ON COTTON YARN

Azerole Bright Yellow Conc. on 100 lbs. cotton yarn. Prepare the dye bath with

1 lb. Azerole Bright Yellow Conc.
(Innis, Speiden & Co., 46 Cliff St., New York, N. Y.)
20 lbs. Common Salt.

Enter at 160° F., and dye at a boil for one hour.

Azerole Bright Yellow Conc. will be found to possess the characteristic properties of the direct cotton colors.

Recipe No. 34

BLUE ON WORSTED YARN

Fast Chrome Blue O Extra on 100 lbs. worsted yarn. First mordant the yarn in a bath made up with

3 lbs. Potassium Bichromate,
2½ lbs. Tartar,

entering the yarn at ordinary temperature, bringing slowly to a boil and mordanting at a boiling temperature for 1 1/2 hours.

Wash the yarn, and then dye in a bath made up with

4 lbs. Fast Chrome Blue O Extra,
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
6 lbs. Acetic Acid,

entering the yarn not above 120° F., bringing slowly to a boil and dyeing at a boil for from 1 to 1 1/2 hours.

Fast Chrome Blue O Extra possesses very good fastness to light.

Recipe No. 35

BLACK ON COTTON YARN

Chlorazol Black N on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Chlor. Black N.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)
3 lbs. Common Salt.

These shades are dyed in the usual manner.

Recipe No. 36

RED ORANGE ON COTTON YARN

Thio Indigo Orange R Paste on 100 lbs. cotton yarn. Prepare the dye bath with

20 lbs. Thio Indigo Orange R Paste,
(Kalle & Co., 530 Canal St., New York, N. Y.)

mixed with ten times its volume of hot water, and to this add

10 lbs. Caustic Soda.
10 lbs. Soda Ash.
10 lbs. Hydrosulphite Conc. Powder.

When completely reduced it is straw yellow in color.

Thio Indigo Orange R Paste possesses excellent fastness to all color destroying agencies.

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Recipe No. 37

BROWN ON WORSTED PIECE GOODS

Brown on 100 lbs. worsted piece goods. Prepare the dye bath with

3 lbs., 12 ozs. Amazo Orange Crystals.
7⅕ ozs. Amazo Brilliant Red 2 B.
12⅖ ozs. Amazo Violet 5 B.
(American Dyewood Co., 84 William St., New York, N. Y.)
3 lbs. Oil of Vitriol.
20 lbs. Glauber's Salt.

Enter goods lukewarm and bring to a boil in 20 minutes. Boil one hour and rinse.

The above colors are very level dyeing and especially adapted to the dyeing of woolen and worsted goods, as they are of very good fastness to light and fulling.

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Recipe No. 38

BLUE ON WORSTED PIECE GOODS

Blue on 100 lbs. worsted piece goods. Prepare the dye bath with

1⅗ ozs. Amazo Brilliant Blue R.
7⅕ ozs. Amazo Violet 12 B.
(American Dyewood Co., 84 William St., New York, N. Y.)
3 lbs. Oil Vitriol.
20 lbs. Glauber's Salt.

Enter goods lukewarm and bring to a boil in 20 minutes. Boil one hour and rinse.

The above colors are very level dyeing and especially adapted to the dyeing of woolen and worsted goods, as they are of very good fastness to light and fulling.

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Recipe No. 39

BROWN ON WORSTED YARN

Alizadine Brown M S D on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Alizadine Brown M S D.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)
5 lbs. Acetic Acid.

After raking the bath well, enter the material, raise to boil in one hour and dye for one to two hours. This yarn has been chrome mordanted with

4 lbs. Bichrome,
3 lbs. Tartar,

and boiled for one hour.

Recipe No. 40

BLUE ON COTTON YARN

Kryogene Direct Blue B N A G on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Kryogene Direct Blue B N A G.
(Badische Co., 86 Federal St., Boston, Mass.)
20 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
30 lbs. Common Salt.

The dyestuff should be dissolved, together with the sodium sulphide, and this solution added to the dye bath which contains the common salt. Boil up the bath, enter the yarn, and dye at a temperature just below the boil for one hour.

Kryogene Direct Blue B N A G possesses good fastness to light, acid, alkali and washing.

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Recipe No. 41

VIOLET ON WORSTED YARN

Victoria Violet R L on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Victoria Violet R L.
(H. A. Metz & Co., 122 Hudson St., New York, N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 160° F., and dye at a boil for one hour.

Victoria Violet R L is a level dyeing color possessing very good fastness to light and rubbing.

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Recipe No. 42

BLUE ON WORSTED YARN

Fast Chrome Blue O Extra on 100 lbs. worsted yarn. First mordant the yarn in a bath made up with

3 lbs. Potassium Bichromate,
2½ lbs. Tartar,

entering the yarn at ordinary temperature, bringing slowly to a boil and mordanting at a boiling temperature for 1 1/2 hours.

Wash the yarn and then dye in a bath made up with

6 lbs. Fast Chrome Blue O Extra,
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
8 lbs. Acetic Acid,

entering the yarn not above 120° F., bringing slowly to a boil and dyeing at a boil for from 1 to 1 1/2 hours.

Fast Chrome Blue O Extra possesses very good fastness to light.

Recipe No. 43

BLUE ON COTTON YARN

Diazo Indigo Blue 4 G L Extra on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diazo Indigo Blue 4 G L Extra.
(Farbenfabriken Co., 117 Hudson St., New York, N. Y.)
30 lbs. Common Salt.
½ lb. Soda Ash.

Dye at a boil for one hour. Then diazotize in a cold bath made up with

2 lbs. Sodium Nitrite.
7 lbs. Hydrochloric Acid Conc.

Work in this cold bath 15 minutes, rinse and develop in a bath made up with

1 lb. Developer A.

Diazo Indigo Blue 4 G L Extra gives a bright shade of greenish blue possessing excellent fastness to light, also very good fastness to alkali, rubbing and washing.

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Recipe No. 44

PINK ON WORSTED YARN

Acid Pink D S on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Acid Pink D S.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
20 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 170° F., and dye at a boil for one hour.

Acid Pink D S can be dyed not only as an acid color, but also as a chromate color, after chromed color, or upon a chrome bottom. For such a bright color its fastness will be found to be very good.

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Recipe No. 45

BLUE ON WORSTED YARN

Lanacyl Blue B N on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Lanacyl Blue B N.
(Cassella Color Co., 182 Front St., New York, N. Y.)
20 lbs. Glauber's Salt.
7 lbs. Acetic Acid.

Enter at 120° F., raise slowly to a boil and dye at a boil for one hour. If necessary, add more acetic acid or a little sulphuric acid towards the end to exhaust the color.

Lanacyl Blue B N possesses excellent fastness to light, alkali, carbonizing, and very good fastness to washing.

Recipe No. 46

YELLOW ON WORSTED YARN

Milling Yellow R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Milling Yellow R.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 120° F., raise slowly to a boil and dye at a boil for one hour. Then add

2 lbs. Acetic Acid,

and continue the boiling until the bath is exhausted.

Milling Yellow R possesses good fastness to washing, milling, and its fastness in general is good, being somewhat superior in these respects to the ordinary acid colors.

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Recipe No. 47

VIOLET ON WORSTED YARN

Acid Violet 4 B N on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Acid Violet 4 B N.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
20 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 160° F., and dye at a boil for one hour.

Acid Violet 4 B N is a very level dyeing color, and is extensively used in the dyeing of loose wool and yarn, on account of its fastness to fulling. As it is not sensitive to chrome it can be used in the shading of alizarine colors.

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Recipe No. 48

BLUE ON COTTON YARN

Kryogene Direct Blue B N A R on 100 lbs., cotton yarn. Prepare the dye bath with

10 lbs. Kryogene Direct Blue B N A R.
(Badische Co., 86 Federal St., Boston, Mass.)
20 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
30 lbs. Common Salt.

The dyestuff should be dissolved, together with the sodium sulphide, and this solution added to the dye bath which contains the common salt. Boil up the bath, enter the yarn, and dye at a temperature just below the boil for one hour.

Kryogene Direct Blue B N A R possesses good fastness to light, acid, alkali and washing.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Machine for Coating Oil Cloth, Leather, Etc. The Reliance Machine Works, of Frankford, Philadelphia, have recently brought out an iron frame coating mill for oil cloth, imitation leather, etc. The cast iron frame removes all danger of fire from static electricity generated by the friction of the cloth. The machine has a twenty-five-inch drum and two steel doctor knives. These knives are adjustable both for height and angle. The mill is low and can be operated by one man and a boy. The height at the front is twenty-four inches, making a short lift for the roll of cloth and color. The speed is sixty yards per minute. The Reliance Cloth Hanging Attachment is used in connection with the machine being attached directly to the back. The spacing between the folds in the first ten feet of the rack is twelve inches. This prevents the folds from sticking. In the remainder of the rack the folds are reduced to six inches, making a greater capacity per lineal foot of rack.

Shuttle Threader. The New England Shuttle Threader Co., New Bedford, Mass., are placing on the market the "Little Manual" threader, which is described in another part of this issue.

Piece Goods Stamping Machine. Henry Wallwork & Co., Manchester, England. A machine for stamping piece goods. It is in successful operation in a number of English warehouses.

Spindle Oiler. Gebrueder Dittes, Werdau, Germany. A device for oiling, spinning and twisting spindles. Economy of oil and uniform lubrication are among the claims made for it.

Winder for Knitting Machines. The Universal Winding Co., 95 South St., Boston, Mass. An attachment for their No. 90 winder which makes it possible to wind a bobbin 2 3/8 inches in diameter and 9 1/2 inches in length, and which is well suited for the requirements of the knitting trade.

Take-up for Braiding Machines. A. & E. Henkels, Langerfeld, Germany. An improved take-up for braiding and similar machines.

Pattern Cutting Machine. J. T. Hardaker, Bradford, England. A machine for cutting cloth patterns. It will handle cloth up to 33 inches in width. It is driven by power, has sliding gauges for ensuring accuracy, and an indicator showing at a glance where the cut will be made. A large production and economy of material are claimed for this machine.

Openwork Knitting Machine. Schubert & Salzer, Chemnitz, Germany. An improved knitting machine designed for the production of fancy effect in openwork knitting.

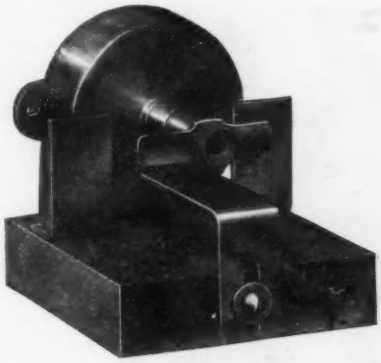
Plush Loom. H. W. Kretschmann, Eisenberg, Germany. A method of weaving pile fabrics, the pile being made by the introduction of rods under the warp.

Combing Cylinder. Schubert & Salzer, Chemnitz, Germany. An improved method of fastening the needles in the cylinder of rotary combing machines.

Ring Frame. J. Sommerhalder, Boyen, Austria. A variable speed ring frame. variable speed device can be attached to ordinary frames if desired.

THE NEW SHUTTLE THREADER

The Massachusetts law forbidding the use of the ordinary shuttles which are threaded by sucking the thread through the shuttle eye, goes into effect on May 1st. Many manufacturers have anticipated that this law would necessitate the discarding of the old style shuttles and the purchasing of hand threading shuttles. To obviate such a result, which would be very expensive, the New England Shuttle Threader Co., New Bedford, Mass., are offering the "Little Manual" threader, shown in the accompanying illustration. By the aid of this device the ordinary shuttle can be used without violating the Massachusetts sanitary law.



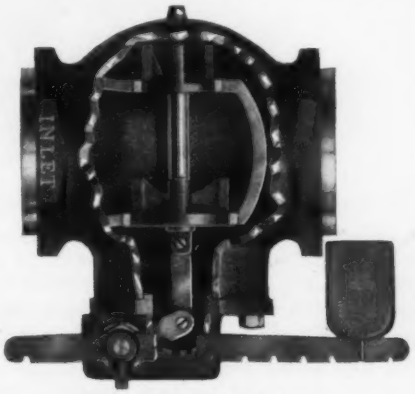
A NEW SHUTTLE THREADER

The operative places the thread in the throat of the shuttle in the usual manner and then places the shuttle on the metal rest, shown in the front of the illustration. When in this position the eye of the shuttle coincides with the rubber mouth of the threaders. A quick push of the shuttle causes a suction which draws the thread through the shuttle eye. The "Manual" threader is mounted on a block of wood 3 1/2 inches square, the total height of the device being 3 1/2 inches. It can be screwed to a filling stand or in any other convenient place. Owing to the simplicity of the device it can be sold at a low price. It is, therefore, an inexpensive but thoroughly practicable and effective means of threading the old style shuttles. It makes unnecessary the unsanitary practice of having operatives apply the mouth to the eye of the shuttle and suck the thread through. It is now in successful operation in New Bedford mills and elsewhere. Full information can be obtained from the Weeden Mfg. Co., selling agents, New Bedford, Mass.

BACK PRESSURE VALVES

The efficiency of the back pressure valve depends upon the design. With a semi-balanced disc the valve is liable to stick and cause trouble if not properly constructed. Brass expands more than iron. If an iron plug is closely fitted at the top and bottom with brass rings and heat is applied, the rings will expand away from the plug. If the rings are a tight fit when cold, they become loose when the plug is heated. The Davis back pressure valve manufactured by the G. M. Davis Regulator Co., 422 Milwaukee Ave., Chicago, Ill., is constructed on this principle.

The seats are bushed with brass rings and the disc is made of iron. When heated by steam the seat rings expand more than the disc so there is no possibility of sticking. It is stated that this is the only back pressure valve built in this way, the design and construction having been patented some years ago by the G. M. Davis Regulator Co. Since that time many of them have been installed and are now in successful operation.



A BACK PRESSURE VALVE.

This valve is made in sizes from 2 to 36 inches for use in either a horizontal or vertical run of pipe. Also in angle pattern with

the inlet on the bottom or side. Sizes from 2 inches to 12 inches inclusive may be had with screwed or flanged ends. Larger valves have flanged ends only.

RAPID TRADEMARKING AND WINDING

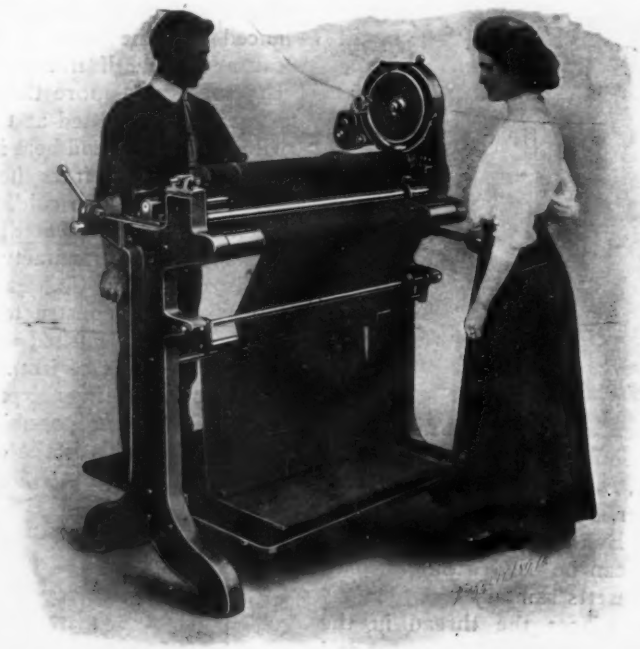
The illustration shows an ink trademarking winder that claims to package cotton cloth for the market at the rate of 1,000 fifty yard cuts per day with two operators. The operation of measuring may be included if wanted and the cut shows such a machine with measuring roll and dial.

When operated by two hands a younger class of help is employed. The cloth is brought on trucks in the yard fold to one side of the machine and the packages are taken away on the other side, also on trucks.

This machine is also made for one operator, in which case he works entirely on the winder side and performs every motion without moving from his tracks.

The trademarks may be spaced every yard or half yard as preferred. A quick drying ink in an air tight fountain insures both instant drying on the cloth, so there is no printing off and a maintenance of the proper fluidity of the ink in the fountain.

The threading is simple and unless the cloth runs very unevenly it is stated the guiding can be done so perfectly that the marks will all come on a selvage three-sixtenths of an inch in width.



NEW TRADEMARKING WINDER. (MODEL P, PARKS & WOOLSON MACHINE CO.)

The ink fountain with its rolls is a self-contained unit by itself and a shift from one color of ink to another can be made instantly by having extra fountains.

This machine is known as the Model P winder and is made in two styles, P 1, shown in the illustration, which is more especially for narrow width cottons and the highest speed work, and P 2, which is made for all kinds of cottons and woolens, light or heavy weight and narrow or wide.

The P 2 machine has a varied assortment of attachments such as measuring, yard-numbering, ink and kaumagraph trademarking, automatic stop for packaging and

cutting off predetermined yardages, compression roll for extremely hard, smooth rolls, supporting arm for great range in width capacity, and many winding accessories for handling all kinds of cores like wooden boards, pasteboards, cardboard tubes, etc. This machine with some of these attachments will be illustrated in our next issue.

The manufacturer of the above machine is the Parks & Woolson Machine Company, Springfield, Vt.

A NEW COLOR MATCHING LIGHT

The light from a clear north sky, the ideal light for color matching, has always been a "will-o'-the-wisp" to manufacturers who depend upon the proper matching or selection of colors as an important part of their business.

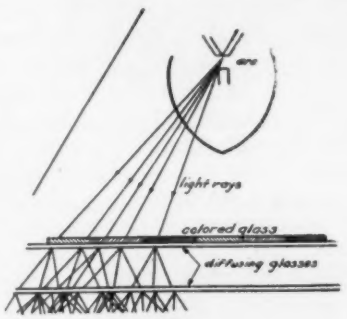


FIG. 1.

At the best, this light is only available a few hours each day, a feature which places a limitation upon production, while on dark or rainy days the absence of this much desired light places a most effective brake upon the work.

One of the largest mill corporations in the world some time ago appealed to the General Electric Company to work out this problem. Even with the corps of trained illuminating engineers and extensive laboratories which that company has available the task was difficult. At last, however, a color matching outfit was evolved which has a spectrum exactly similar to that of a clear north sky and is a marvel of simplicity.

The device consists primarily of an intensified arc lamp with a special casing and an ingenious arrangement of glass screens that remove the excess of red, orange and violet rays found in the spectrum of the arc light.

This intensified arc lamp has always been recognized as the nearest approach to daylight of any commercial artificial illuminant and thousands are being used in the leading department stores of this country. The addition of the color screen corrects the light absolutely to that of the north light. The color screens consist of a number of colored strips arranged side by side to take out the excess rays, and a diffusing glass whose function is to mix the light. Fig. 1 shows how this is accomplished. These glasses are made up in the form of a circle about 16 inches in diameter and are placed in the large end of a conical hood which is attached to the casing of the lamp. This hood surrounds the inner globe and is given a reflecting surface so that the light is projected down through the color screen and the direct rays are kept from the eyes of the user. Already this device has been standardized for use in all of the mills operated by the corporation who sought relief from the "north light"

FIG. 2.

vagaries. Day or night, rain or shine, the turn of a switch places in use a perfect color

6 AMPERS INTENSIFIED ARC LAMP WITH COLOR MATCHING ATTACHMENT.

matching light permitting the maintenance of an accuracy of quality which is the desire of every manufacturer.

HOLLOW METAL HOSE BOARD

W. D. Butz, 625 Bourse Bldg., Philadelphia, is introducing to the knit goods trade the Ermentrout Oval Hollow Metal Hose Board, of which patent is now pending. This is a device for boarding and drying hosiery without the use of a dry box. The boards are mounted in a stationary position at the proper angle upon the regular boarding table, and steam at 4 lbs. pressure is introduced. It is claimed that the drying is accomplished by the time the boarder reaches the seventh or eighth board, and a helper can begin to remove the hose in the order in which they were put on, so that the operation is continuous. The boards are made the size and shape of any sample desired, and for infants, children, misses, ladies and half hose styles. This new device will be on exhibition at the Knit Goods Show to be held in Philadelphia in May, and boards are also fitted up for demonstration at Mr. Butz's office in the Bourse.

ELECTRIC POWER IN THE CANNON MILLS

BY JOHN P. JUDGE

The Cannon Mills comprise an aggregation of cotton mills located in the Southern States and managed by J. W. Cannon, of Concord, N. C. The mills are not banded into a corporation, although they employ a common selling agency with stores and offices in New York. The electrical equipment for the mills was decided upon about three years ago and has been in service about two years. Prior to this installation, several northern mills had installed some individually driven machines and two other southern mills had determined to install this system. The Cannon Mills, however, were among the first large new mills in this country to be so driven.

The principal argument in behalf of the system was that the elimination of all belts would effect the maximum production, which in turn would amply justify the cost involved. These arguments were not based on theory, as experience in this country and a much wider experience abroad had shown satisfactory results in practice. It was found, however, that the increased production called for more power, due to the maintenance of the maximum speed. This necessitated some changes, which were completed about eighteen months ago, and since that time the equipment has been entirely satisfactory to the owners. About a year ago an elaborate series of tests were made, comparing the spinning rooms using individual drive with a spinning room of the Cannon Mills at Concord using group drive. These tests were made simultaneously in order that the weather conditions might be the same, and covered one week's production, both mills using the same make of frames, same counts,

and the same grade of cotton. The tests were made by a competent engineer and every detail was checked by the operating forces of the mills. An increased production

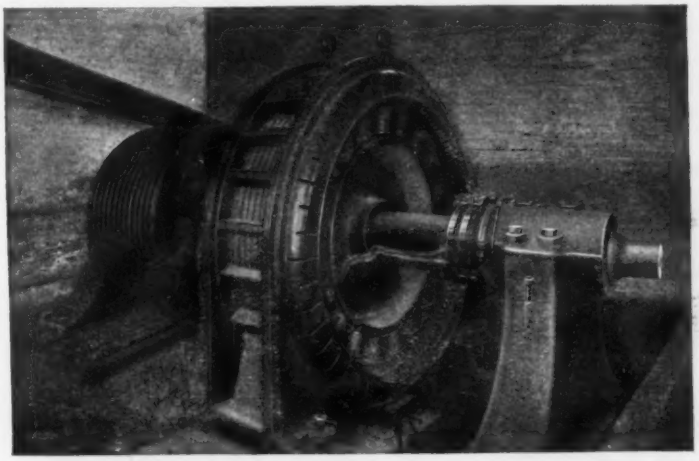


FIG. 1. 580 KW. GENERATOR AT CABARRUS MILL.

per spindle of over 12 per cent. was shown on the individually driven frames, and an increased consumption of power per pound of yarn of 10 per cent. These figures confirm previous observations; namely, that the power curve of a spinning frame rises faster than the production curve; but the value of the increased production is much greater than the cost of the extra power. The elimination of shafting and belting, with the care and expense of renewals and oiling, would also doubtless make a good showing in favor of the individual drive. Some persons have feared that the large number of small motors would tend to heat the spinning room excessively. Careful tests with reliable thermometers showed lower temperature rise with the individual drive than with group or engine drive.

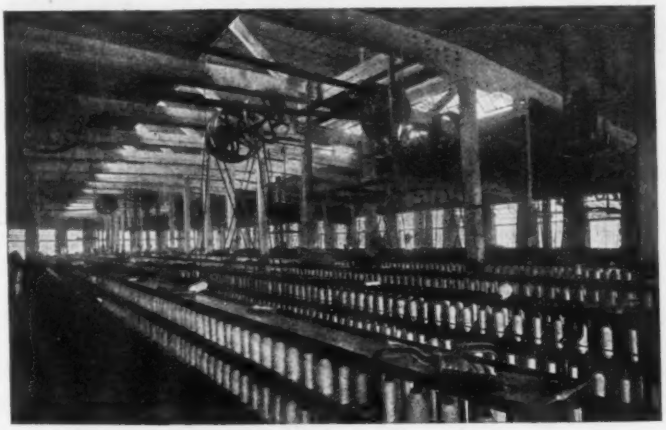


FIG. 2. GROUP OF SPINNING FRAMES IN CABARRUS MILL. DRIVEN BY MOTOR LOCATED OVERHEAD.

In all mills where 2200 volt motors are

used, the current is first brought to an incoming line panel, on which are mounted an automatic oil switch, an indicating wattmeter and a watthour meter. From this panel, busbars are carried to a line of fuse panels, each of which is equipped with expulsion fuses and two marble barriers. One panel is provided for each motor. The feeders from the panels to the motors consist of triple conductor copper cables with varnished cambric insulation and lead sheath; they are drawn into iron conduit, which is continuous from the fuse blocks to the motors. As the fuses are solely for the protection of the circuit and are much larger in capacity than the motors, they seldom blow. In fact, so rarely does this occur that the average for three years is less than one fuse per motor. This system does away with all fuses in the mill proper, and at the same time is simple, clean, inexpensive, and has proven very satisfactory.

Fig. 1 shows the 580 k. w. generator at the Cabarrus Mill. Fig. 2 is a view of a group of spinning frames, driven by an overhead motor at the same mill. By the use of slower speed motors in the weave room of this mill, a large quantity of countershafting was eliminated and much better results obtained, the motors originally installed being discarded. In every instance the countershaft of "A" frame were omitted from the picking machines. Fig. 3 shows the new picker room in the Kesler mill, with individual drive, this system having been approved by all who have used it.

FIG. 3. THE NEW PICKER ROOM IN KESLER MILL—INDIVIDUAL DRIVE

In the Kannapolis mills an individual motor is mounted on each spinning frame and in most cases direct connected to the cylinder, but so designed that gears may be used if it is necessary to vary the speed considerably. All motors have a synchronous speed of 1200 r. p. m., with the exception of those on 25 frames, which have a speed of 1800 r. p. m. and are geared to the cylinder shafts. Each motor is controlled by a triple-pole single-throw oil switch connected to the shifting rod of the frame. These equipments are shown in Fig. 4. Current is taken from a main on the coiling, through a switch, to the distributing board, each board feeding eight motors through armored cable run in ducts under the floor. This arrangement causes no obstruction of the aisles. In

both mills the spinning room was on the ground floor of a concrete, moisture-proof building, which made the wiring problem

FIG. 4. SPINNING FRAMES IN KANNAPOLIS MILLS DRIVEN BY INDIVIDUAL INDUCTION MOTORS.

difficult. Fig. 5 is a view of the interior of the Cannon weave shed. Motors are used for driving fire and other pumps, all power

FIG. 5. WEAVE SHED IN THE CANNON MILL.

used in both mills being distributed electrically through General Electric apparatus.

In general, the success attending the operation of the Cannon Mills since the introduction of electric power is a plume in the cap of the advocates of individual motor drive. The absence of the unsightly network of belting, everywhere in evidence before the introduction of the electric motor, the saving of energy for a given quantity of production and the cleanliness, flexibility, and reduced risk to life and limb resulting from the employment of this form of drive are advantages that in most cases far outweigh the cost involved in substituting it for the steam engine drive.

Personals

Judge Charles H. Duell has been made Chairman of the Roosevelt Committee for New York City. Judge Duell is the President of the Klauder-Weldon Dyeing Machine Co. of Amsterdam, N. Y. and Huddersfield, England.

Gilbreth Dawson, for the past six years foreman for J. Capps & Sons, Ltd., Jacksonville, Ill., has resigned. For 25 years he had charge of the spinning and weaving at the Rock Mfg. Co., Rockville, Conn.

Lebeau Grundy, chief engineer at the Stafford Mills, Fall River, Mass., has resigned to accept a similar position at the Richard Borden Mfg. Co., same place.

Daniel J. Hurley has succeeded Lebeau Grundy as chief engineer at the Stafford Mills, Fall River, Mass. He comes from the City Mfg. Co., New Bedford, Mass., where he held the position of engineer. His successor at the City Mfg. Co. is Philip F. Leary.

Charles Oman has succeeded Stephen D. Bennett as overseer of carding at the Booth Mfg. Co., New Bedford, Mass. Mr. Bennett resigned to become superintendent of this mill.

Danforth Hathaway, treasurer of the Pilgrim Mills, Fall River, Mass., has resigned.

Joseph Schiffers, for the past two years overseer of dyeing at the Talbot Mills, North Billerica, Mass., has severed his connection with that company.

William Mason, for years employed as overseer of the weaving department at the Grant Mill, Providence, R. I., has assumed charge at the Royal Mill, Riverpoint, R. I., succeeding Cornelius Donahue, who has resigned to accept a similar position at the Stark Mills, Manchester, N. H.

Clark Chase, Jr., has been elected clerk and treasurer of the Puritan Mills, Plymouth, Mass.

Philip G. Brug has succeeded Albert Rhodes as designer at the Sherriffs Worsted Co., Fitchburg, Mass. Mr. Brug was formerly with the Waskanut Mills, Farnumsville, Mass.

James Kennedy, who has been assistant foreman of the plant of the Fales & Jenks Machine Co., for the past 35 years, has resigned. He was presented with a morris chair and meerschaum pipe by the employes to show their esteem and friendship toward him.

Edward Hall succeeds E. M. Dry as superintendent of the Tuscarora Mill, Mt. Pleasant, N. C. He comes from Itasca, Tex.

J. E. Kestler has accepted the position as overseer of carding at the Paola Mill, Statesville, N. C. He comes from Charlotte, N. C.

Hamp Godfrey, overseer of the cloth room at the Grendel Mills, Greenwood, S. C., has resigned to accept a similar position with the Abbeville Cotton Mills, Abbeville, S. C.

D. W. Knight has accepted the position as overseer of winding and spooling at the Kinston Cotton Mills, Kinston, N. C. He comes from Rocky Mount, N. C.

R. C. Cole, overseer of twisting, spooling and warping at the Roxboro Cotton Mills, Roxboro, N. C., has resigned to accept a similar position with the Pomona Mills, Greensboro, N. C.

G. E. Putnam, overseer of the cloth room at the Abbeville Cotton Mills, Abbeville, S. C., has resigned.

C. L. Faulkner, superintendent of the Hutcheson Mfg. Co., Banning, Ga., has resigned to accept a position with the Newnan Cotton Mills, Newnan, Ga.

H. W. Thomas has accepted the position as overseer of weaving at the Fairmont Mills, Fairmont, S. C. He comes from White Stone, S. C.

George A. Howell has accepted the position as superintendent of the Arlington Mills, Gastonia, N. C., succeeding George A. Gray.

A. A. Harris, formerly superintendent of the Munford Mills, Munford, Ala., has accepted a similar position with the Sycamore Mills, Sycamore, Ala.

James Bailey has succeeded F. T. Hoy as overseer of weaving at the Seneca Cotton Mill, Seneca, S. C.

Ben Laughter has accepted the position as overseer of weaving at the Kansas City Cotton Mills, Kansas City, Kan. He was recently employed with the Fulton Bag & Cotton Mills, Atlanta, Ga.

J. H. Huff has accepted the position as overseer of spinning at the Victor Mill, Greer, S. C. He comes from the Gaffney Mfg. Co., Gaffney, S. C. His successor at the Gaffney Co. is John Kennett, from Union, S. C.

C. D. Huff has accepted a position as overseer of spinning at the Chesnee Mills, Chesnee, S. C.

J. E. Buchanan, formerly at the Home Cotton Mills, St. Louis, Mo., has accepted a position as overseer of carding at Kansas City, Kan.

John A. Sullivan, overseer of the spooling, warping and slashing departments at the Fall River Iron Works, Fall River, Mass., has severed his connection with that company.

Isaac L. Sargent, for the past twelve years overseer of the No. 4 weave room at the Androscoggin Mill, Lewiston, Me., has severed his connection with that company.

Frank C. Cunha, boss comber at the Dartmouth Mfg. Corp., New Bedford, Mass., has resigned to accept a position at the Bibb Mfg. Co., Columbus, Ga.

Moses Ainsworth, overseer of warping and spooling at the Weetamoe Mills, Fall River, Mass., has resigned to go to the Iron Works Mill.

He will have charge of departments in the No. 6 and 7 mills. On leaving the Weetamoe Mill, the employes presented him with a silk umbrella and a meerschaum pipe.

Arnold Standfast has taken the position as overseer of dyeing at the Union Bleaching & Finishing Co., Greenville, S. C. He was formerly employed at the Arnold Print Works, North Adams, Mass.

William Pendergast has accepted the position as overseer of carding at the American (Waite) Felt Company's mill at Franklin, Mass.

F. A. Richmond, for over thirty years connected with the Renfrew Mfg. Co., Adams, Mass., has severed his connection with that company. He was first in the office as a clerk for many years and was also paymaster. He has had charge of the shipping department for some years past. W. C. Ainslie, overseer of the finishing department, will hereafter take charge of the shipping, also.

William Grindrod has accepted the position of second hand of weaving at the Hamilton Co., Amesbury, Mass. He comes from the Massachusetts Mills at Lowell, Mass.

John Hargraves, overseer of weaving at the Faulkner Mfg. Co., North Billerica, Mass., has resigned. He was presented with a Masonic ring by the employes as a token of their friendship.

Bert Haley has accepted the position as overseer of carding at the French & Ward Mill, West Stoughton, Mass. He comes from Waterville, Me.

Francis H. Evans has accepted the position as master mechanic at the Marland Mill, M. T. Stevens & Sons, Andover, Mass. He comes from Hyde Park, Mass.

James Martin has been appointed overseer of the entire weaving department at the Weybosset Mills, Providence, R. I.

James Tinker has accepted the position as master mechanic at the Wood Worsted Mills, Lawrence, Mass. He has been master mechanic at the Bibb Mfg. Co., Columbus, Ga., for the past ten years.

W. E. Chamberlin has accepted the position as overseer of finishing at the Bay State Worsted Co., Worcester, Mass. He comes from Woonsocket, R. I.

Percy Bromley, who has had charge of about 1,000 looms at the Weybosset Mills, Providence, R. I., has severed his connection with that company and the entire weaving department is now in charge of James Martin.

Samuel Taylor, for the past ten years superintendent of the Soule Mill, New Bedford, Mass., has resigned. His successor will be George I. Macy, who has been overseer of spinning, spooling and warping at the Grinnell Mills, New Bedford.

J. W. Long, for the past two years in charge of the card room at the Taylorsville Cotton Mill, Taylorsville, N. C., has accepted the position as overseer of carding and combing at the Elizabeth Mill, Charlotte, N. C., where he was formerly second hand.

Robert Wilson, Jr., has succeeded W. V. Jones as overseer of carding at the Manchester Mill, Macon, Ga.

R. Shackelford has accepted the position as master mechanic at the Fountain Inn Cotton Mill, Fountain Inn, S. C. He comes from the Glen-Lowry Mill at Whitmire, S. C.

D. L. Garrison has accepted the position as overseer of carding at the Saxony Mill, Lincolnton, N. C. He comes from Cherryville, N. C., where he held the position as night carder and spinner.

S. M. Butler has accepted the position as overseer of weaving at the Asheville Cotton Mills, Asheville, N. C. He comes from the Augusta Factory, Augusta, Ga.

J. E. Haddy has been appointed superintendent of the Canebrake Cotton Mill, Uniontown, Ala. He comes from the Helen Mill at Selma, Ala.

W. F. Hunt has accepted the position as master mechanic at the Mills Mfg. Co., Greenville, S. C. He comes from Easley, S. C.

J. E. Hand, formerly overseer of carding at the Dixie Mills, LaGrange, Ga., has accepted a similar position with the Dunson Mills of the same place.

G. G. Allen has accepted the position as overseer of dyeing at the Erwin Mills, Cooleemee, N. C.

N. Noblet has been promoted from second hand to overseer of the cloth room at the Norris Cotton Mills, Cateechee, S. C.

E. S. Williams has accepted the position as overseer of weaving at the Nokomis Mills, Lexington, N. C. He comes from Lexington, N. C.

N. N. Halley has been promoted to the position of overseer of the cloth room at the Eureka Mill, Chester, S. C.

W. F. Howard has accepted the position as overseer of weaving at the Williamston Mills, Williamston, S. C., having resigned a similar position at the Alice Mills, Easley, S. C.

M. J. H. O'Kelly has accepted the position as master mechanic at the Bibb Mfg. Co., Columbus, Ga. He comes from Porterdale, Ga.

W. A. Duke, overseer of carding at the Saxony Mills, Lincolnton, N. C., has resigned to accept a similar position with the Majestic Mills, Belmont, N. C.

James Knight has accepted the position as overseer of carding and spinning at the Pickett Mills, High Point, N. C. He comes from Charlotte, N. C.

M. T. Grimes has been appointed superintendent of the Chadwick-Hoskins Mill, No. 5, Pineville, N. C. He comes from Thomson, Ga.

W. H. Bigson, overseer of weaving at the Wylie Mills, Chester, S. C., has accepted a similar position at the Alice Mills, Easley, S. C.

P. A. Gwaltney, overseer of carding and combing at the Elizabeth Mills, Charlotte, N. C., has resigned to accept a position as overseer of carding at the Chesnee Mills, Chesnee, S. C.

P. A. Smith, overseer of spinning at the Fulton Bag & Cotton Mills, Atlanta, Ga., has resigned to accept a similar position at the Canton Cotton Mills, Canton, Ga.

J. C. Gambrell has been promoted to the position of assistant superintendent at the Bibb Mfg. Co., Macon, Ga. J. R. Plunkett has accepted the position made vacant by the promotion of Mr. Gambrell.

Fred H. Milnes has been appointed superintendent and manager of the Fradd & Wood Felt Mill, Manchester, N. H. He comes from Pittsfield, Mass.

Herman E. Thompson has been appointed mechanical superintendent of the Amoskeag Mfg. Co., Manchester, N. H., succeeding his brother, Albert W. Thompson, who has accepted a position at the Lowell Machine Shop.

W. H. Leyfield has accepted the position as overseer of finishing at the Sawyer, Regan Co., Dalton, Mass. He comes from the Allen Woolen Mills, Rochester, N. Y.

J. J. Driscoll has accepted the position as overseer of carding and spinning at the Cumberland Mill, Lewiston, Me.

Samuel J. Mellon, overseer of carding at the Agawam Co., Agawam, Mass., has resigned.

Mr. Tillson has succeeded N. P. Kavanaugh as superintendent of the Rutholt Dye Works, Philadelphia, Pa.

Heywood Ramsden, overseer of dyeing and finishing at the Garland Woolen Co., Staffordville, Conn., has resigned and is succeeded by Jos. Costine.

John L. Burton was elected agent of the Nashawena Mills, New Bedford, Mass., at a recent meeting of the directors of that corporation. Mr. Burton has been general superintendent of the mill.

Howard W. Evans has been engaged as general manager of sales for the Best Mfg. Co., of Pittsburg, Pa., and will supervise the sales, orders and engineering departments. Mr. Evans was formerly connected with the Crane Co. of Chicago in a similar position to the one he will fill with the Best Mfg. Co. The new catalogue of this concern is now ready for distribution.

Henry Ray has been appointed second hand of carding at the Potomska Mill, New Bedford, Mass., succeeding Charles Oman, who has accepted the position as overseer of carding at the Booth Mfg. Co., same place.

Harry Turner, foreman of the foreign waste department of the Hadley division of the American Thread Co., Holyoke, Mass., has been promoted to the position of assistant manager of the cost department.

Paul Westein has accepted the position as overseer of weaving at the French River Textile Co., Mechanicsville, Conn.

Duncan McKenzie has accepted the position as overseer of dyeing at the Berkshire Mfg. Co., Philadelphia, Pa. He comes from Pawtucket, R. I.

Courtland C. Earle has accepted the position as general second hand of carding at the No. 1 and 2 Mills of the Grant Yarn Co., Fitchburg, Mass.

George Belanger has accepted the position as overseer of carding at the Tarkiln Mill, Burrillville, R. I. He comes from Mapleville, R. I.

Louis Pendergast has accepted the position as overseer of carding at the Agawam Co., Agawam, Mass. He comes from the Millers River Mfg. Co., Athol, Mass.

George H. Norton has accepted the position as overseer of dyeing at the Montmorency Cotton Mills, Montmorency Falls, P. Q., Canada. He comes from Uncasville, Conn.

John Remington has been promoted to the position of overseer of dyeing at the Nasonville Woolen Co., Nasonville, R. I. He was formerly second hand.

Everett S. Wells has accepted a position at the Aetna Mills, Watertown, Mass. He was formerly with the Globe Woolen Co., Utica, N. Y.

J. P. Goodrow has accepted the position of second hand in the weave room at the West Boylston Mfg. Co., Easthampton, Mass. He comes from the Slater Mills, Webster, Mass.

George R. Thurston, formerly with the Textile Finishing Machinery Co., Providence, R. I., and assistant treasurer of the American Textile Co., Pawtucket, R. I., has resigned.

S. B. Blair, overseer of spinning at the Holston Cotton Mills, Lenoir City, Tenn., has resigned to accept a similar position with the Knoxville Spinning Mills, Knoxville, Tenn.

A. P. Smith, overseer of spinning at the Fulton Bag & Cotton Mills, Atlanta, Ga., has resigned to accept a similar position at Canton, Ga.

F. L. Kettle, overseer of carding at the Athens Mfg. Co, Athens, Ga., has resigned to accept a position with the Southern Mfg. Co., of the same place.

R. R. Blakely, formerly overseer of the cloth room at the Victor Mills, Sylacauga, Ala., has accepted a similar position at the Brandon Mills, Greenville, S. C.

Samuel Taylor has been appointed superintendent of the Dayton Mills, Spartanburg, S. C. He formerly held a similar position at the Soule Mill, New Bedford, Mass.

William Patnod, second hand of weaving at the Stark Mill, Manchester, N. H., has been promoted to the position of overseer of weaving.

Herman Gruetzner has accepted the position as overseer of dyeing at the Capitol City Woolen Mills, Des Moines, Ia. He formerly held a similar position with the Oehrle Bros. Company, Philadelphia.

John Nielson has been appointed superintendent of the Alpena Woolen Mills, Alpena, Mich. He comes from Litchfield, Minn.

I. B. Covington, superintendent of the Albion Cotton Mills and the Mt. Holly Cotton Mills of Mt. Holly, N. C., has also taken charge of the Stanley Cotton Mills, Stanley, N. C.

R. G. Williams has accepted the position as master mechanic at the Central Mills, Sylacauga, Ala.

Robert Latham, Jr., has been appointed superintendent of the Middleburg Mills, Batesburg, S. C.

W. O. Stowe has accepted the position as night overseer of carding and spinning at the Highland Park Mill No. 3, Charlotte, N. C.

R. F. Coble, superintendent of the Pickett Mills, High Point, N. C., has resigned. He has been appointed general superintendent of the Atlas Mfg. Co., and the Huss Mfg. Co., of Bessemer City, N. C.

J. D. Gallaway has accepted the position as overseer of weaving at the Middleburg Mills, Batesburg, S. C. He comes from the Monaghan Mills, Greenville, S. C.

E. T. Barnes, formerly overseer of the spinning at the Granby Mills, Columbia, S. C., has accepted the position as overseer of carding and spinning at the Wallace Mills, Laurens, S. C.

S. R. Lybrand, who has been with the Union Cotton Mills, Union, S. C., for a number of years, has been recently promoted to the position of overseer of spinning.

James J. Ryan has accepted the position as overseer of finishing at the Holden Leonard Company, Bennington, Vt. He comes from Adams, Mass.

John Scully has accepted the position as overseer of weaving at the Ellis Mills, Monson, Mass.

C. H. Cook has accepted the position as overseer of finishing at the Pondicherry Co., Bridgton, Me. He was formerly employed at the H. T. Murdock & Co.'s mill at Proctorsville, Vt.

Albert J. Cole has been promoted to the position of overseer of finishing at the H. T. Murdock & Co.'s Mill, Proctorsville, Vt. He was formerly second hand.

J. W. Bolton, general superintendent and O. B. Greene, assistant secretary and treasurer of the Cleveland Worsted Mills Co., Cleveland, O., have been elected directors of this company.

James W. Allen, treasurer of the Dartmouth Mfg. Corp'n, New Bedford, Mass., has resigned. Clifton H. Bartlett has been appointed treasurer pro-tem.

Joseph Seveney, for a number of years overseer of the spinning department at the Chace Mills, Fall River, Mass., has resigned. He has accepted a similar position at the Tecumseh Mills, same city. The employes presented him with a handsome ink well, fountain pen and a diamond stick pin.

Joseph Campbell, night watchman at the Langewald Woolen Co., Monson, Mass., has resigned and is succeeded by Paul Sherman.

Leo Schindler, overseer of weaving at the Somerset Woolen Co., Monson, Mass., has resigned. The weavers presented him with a meerschaum pipe, a smoking set and a box of cigars. He has accepted a similar position with the Garland Woolen Co., of Staffordville, Conn.

Frank Bulkeley Smith, treasurer and manager of S. Slater & Sons, Inc., Webster, Mass., has resigned. He has been elected treasurer and general manager of the New England Cotton Yarn Co., of Boston, New York and Philadelphia.

W. K. White has accepted the position as overseer of weaving at the Pauline Mills, Kings Mountain, N. C.

D. S. Reynolds has accepted the position as overseer of carding and spinning at the Melville Mills, Cherryville, N. C. He comes from the Vivian Mills of this place.

J. G. King, who has been superintendent of both the Elmira and Lakeside Mills at Burlington, N. C., has given up his position at the Lakeside Mill and will give his entire time to the Elmira Mill.

Lawrence Thompson will succeed J. G. King as superintendent of the Lakeside Mills, Burlington, N. C. He comes from Haw River, N. C.

C. V. James has accepted the position as night overseer of carding and spinning at the Kindley Cotton Mill, Mt. Pleasant, N. C. He comes from the Cannon Mfg. Co., at Kannapolis, N. C.

Tom J. Jones, overseer of spinning at the Swift Mfg. Co., Columbus, Ga., has resigned to accept a similar position with the Girard Cotton Mills, Girard, Ala.

W. B. Sawyer, night overseer of carding and combing at the Marlboro No. 4 Mill, McColl, S. C., has resigned.

L. H. Hoover, overseer of carding and spinning at the Marlboro No. 2 Mill, McColl, S. C., has resigned to accept a similar position at Gastonia, N. C. C. K. Quick succeeds Mr. Hoover at McColl, S. C.

John Tinkler, formerly overseer of carding at the Wylie Mill, Chester, S. C., has accepted the position as night overseer of carding at the Marlboro No. 4 Mill, McColl, S. C.

A. L. McCoombs, overseer of the cloth room at the Darlington Mfg. Company, Darlington, N. C., has resigned to accept a similar position with the Grendel Mill No. 1, Greenwood, S. C.

J. E. Merchant has accepted a position as overseer of the cloth room at the Hartsville Cotton Mills, Hartsville, S. C. He was formerly over-

seer of the Grendel No. 1 cloth room at Greenwood, S. C.

Robert G. Campbell, for the past several years general superintendent of the White Oak and Proximity Cotton Mills, Greensboro, N. C., has tendered his resignation to take effect March 1.

Walter McMann, overseer of bleaching at the New York Mills, New York Mills, N. Y., has resigned.

Emmet J. Shaughnessey, superintendent of the Southgate Woolen Mills, Worcester, Mass., has resigned to accept a position as assistant manager of a large mill in Raritan, N. J. S. E. Lancaster, who has been connected with the Ottaquechee Woolen Co., Evarts, Vt., will succeed Mr. Shaughnessey.

Emanuel Ormerod, second hand at the Natick Mills, Natick, R. I., has resigned to accept a position as second hand and designer at the Corr Mfg. Co., East Taunton, Mass.

George L. Forrest, who has been superintendent of the East Brook Mfg. Co., Gardner, Mass., has resigned. His successor is John Shea, formerly with the Alling Mills of Derby, Conn. Charles Elder, assistant superintendent of the East Brook Mfg. Co., has resigned.

R. G. Mims has accepted the position as overseer of weaving at the Alexander City Cotton Mills, Alexander City, Ala.

George H. Wilson, secretary of the U. S. Bobbin & Shuttle Company, Providence, R. I., was elected to the office of treasurer of the concern, succeeding Col. H. Martin Brown. He will now hold the position of secretary-treasurer of the concern.

Charles W. Lynch, for a number of years connected with the local Merrimack Woolen Mill, Dracut, Mass., as second hand in the carding department, has accepted the position as overseer of carding at the Miller River Mfg. Co., Athol, Mass.

James Keaton, superintendent of one of the branches of the Van Raalte Bros. Silk Co., Paterson, N. J., has tendered his resignation. After March 1 Mr. Keating will be located with Julius Kayser & Co., at Sidney, N. Y.

Archibald Ormiston, overseer of dyeing at the Strathmore Worsted Mills, Concord Junction, Mass., has severed his connection with that company. He is succeeded by Geo. W. Davis of Lawrence, Mass.

James H. H. Rose has accepted the position as second hand in the finishing department at the Sawyer-Regan Co., Dalton, Mass.

John Donald has accepted the position as overseer of sewing at the Narragansett Worsted Co., North Oxford, Mass. He comes from Dayville, Conn.

J. H. Zanker, overseer of weaving at the Cleveland Worsted Mills, Cleveland, Ohio, has resigned his position.

Robert Armstrong, formerly with the Hartford Woolen Co., Hartford, Vt., has accepted the position of overseer of dyeing at the Dexter, Richards & Sons Co., Newport, N. H., succeeding Ulick Burke.

Guy C. Templeton has accepted the position as overseer of finishing at the Sykes Woolen Mills, Reynoldsville, Pa. He comes from Greenville, R. I.

William Barras, for many years managing textile plants in Philadelphia, is now connected with the Ontario Dyeing Co., mercerizers and dyers of yarns in Philadelphia, as an officer of the company.

Frank J. Nolan, formerly connected with D'Olier & Co., of Philadelphia, as salesman, has been appointed by the government to the position of mercantile appraiser and is now located at the New York Custom House.

J. R. McMasters, connected with Joseph Greers, Emerald Mills, in Frankford, Philadelphia, for the past thirty years as manager, has retired from his position and is "now resting up." It is reported in some quarters that it is Mr. McMaster's intention to equip a plant and start it up on his own account.

Stanley H. Hart, textile inspector at the Schuylkill Arsenal, Philadelphia, Pa., is now located at Monson, Mass., where he is engaged in inspecting the uniform cloth contracts placed by the government with the Ellis Mills and Ricketts & Shaw.

Henry L. Stewart, overseer of finishing at the Glen Worsted Co., Elmville, Conn., has severed his connection with that company. On resigning, the employes of this company presented him with a gold chain and charm. He is succeeded by William K. Mulligan, who formerly held this position.

Charles L. Staples, agent of the Charles River Woolen Co., North Bellingham, Mass., has been appointed superintendent of the Dexter, Richards & Sons Co., Newport, N. H., succeeding J. M. Masson, who resigned.

Edward Heine has accepted the position as overseer of weaving at the Somerset Woolen Co., Monson, Mass. He comes from Lowell, Mass.

George F. Hussey, overseer of dressing at the Oakland Mfg. Co., Sykesville, Md., has resigned to accept a similar position at the Iroquis Mill, Saugus, Mass.

George Uhlig has accepted the position as overseer of dyeing at the Otto Pietsch Dye Works, Milwaukee, Wis. He comes from Des Moines, Ia.

Roy H. Spaulding, superintendent of the Squam Lake Mill, Ashland, N. H., has severed his connection with that company.

James Taylor, who has been overseer of the embossing department at the Interlaken Print Works, Riverpoint, R. I., for the past twenty years, has resigned. His successor is Philip Emmett.

E. Kent Hubbard, president of the Russell Mfg. Co., Middletown, Conn., has resigned. William

H. Burrows, one of the directors, has been elected to succeed him.

Thomas Ellis, overseer of the worsted spinning and twisting departments at the George H. Gilbert Mfg. Co. mills at Ware, Mass., has resigned.

Arthur Ducharme has succeeded P. J. Conway, who recently resigned as foreman of the upper weave room of the Manville Mill, Manville, R. I.

James Shea, overseer of spinning at the Ray Mills, American Woolen Co., Franklin, Mass., has severed his connection with that company. He was presented with a handsome meerschaum pipe and box of cigars by the help of his department.

Danforth H. Hathaway, treasurer of the Pilgrim Mills, Fall River, Mass., has resigned. Arthur C. Homer has been elected treasurer to succeed him.

J. Edward Bryson, formerly overseer of carding and spinning at the Knoxville Woolen Mills, Knoxville, Tenn., has accepted a position as overseer of spinning at the Thomaston Mills, Thomaston, Ga.

O. L. Grice has accepted the position as overseer of carding and spinning at the Fort Valley Cotton Mills, Fort Valley, Ga.

J. E. Osteen, formerly of the Brandon Mill, Greenville, S. C., has succeeded Frank Hamilton as superintendent of the Norris Mill, Cateechee, S. C.

W. M. Moore has been promoted from night overseer to that of day overseer of weaving at the Globe Mfg. Co., Gaffney, S. C.

J. P. McCraw has accepted the position as overseer of weaving at the Warrenville Cotton Mill, Warrenville, S. C. He comes from the Lydia Mills of Clinton, S. C.

S. T. Daniels has been appointed overseer of carding and spinning at the Neuse Mfg. Co., Falls, N. C.

Fred Rollins, formerly of Henrietta, N. C., has succeeded T. M. Hurt as overseer of weaving at the Shelby Cotton Mills, Shelby, N. C.

T. M. Reeves, from Yorkville, S. C., has accepted the position as overseer of carding and spinning in Mill No. 1, at Lancaster, S. C.

A. D. Lawn has been appointed superintendent of the Fulton Bag & Cotton Mills, Atlanta, Ga. He comes from the Bibb Mfg. Co., Macon, Ga.

J. S. Drake has been appointed superintendent of the Exposition Cotton Mills, Athens, Ga. He comes from Winston-Salem, N. C.

J. S. Drake has again accepted the superintendency of the Cochran Cotton Mill Co., Cochran, Ga., after an absence of a year.

S. M. Smith, formerly overseer of spinning in Mill No. 3, of the Clifton Mfg. Co., has been appointed superintendent of the Converse Mills, Glendale, S. C., succeeding his father, S. G. Smith, who has resigned.

G. H. Wentz has accepted the position as overseer of the cloth and finishing rooms at the Cowikee Cotton Mills, Eufaula, Ala. He comes from Sylacauga, Ala.

R. P. Jackson has accepted the position as overseer of spinning at the Neely Mfg. Co., Yorkville, S. C. He comes from Rock Hill, S. C.

W. C. Cessna, of Quitman, Ga., has accepted the position as overseer of carding at the Athens Mfg. Co., Athens, Ga.

Ben Nuttall, superintendent of the cotton department of the Atlanta Woolen Mills, Atlanta, Ga., has resigned and is now superintendent of the Munford Cotton Mills, Munford, Ala.

J. B. Cleary, overseer of spinning at the Knoxville Spinning Co., Knoxville, Tenn., has resigned to accept a similar position at the Holston Mfg. Co., Lenoir City, Tenn.

C. M. Rafter has succeeded C. H. Hammond as overseer of carding and spinning in Mill No. 1, at Fort Mill, S. C. He was formerly employed at the Arcade Mill at Rock Hill, S. C.

D. C. Colvin has been appointed superintendent of the Anna Mill, Kings Mountain, N. C. He comes from Fountain Inn, S. C.

J. B. Knight, overseer of spinning at the Georgia Mfg. Co., Gainesville, Ga., has resigned.

J. T. Timmerman, overseer of spinning at the Avondale Mills, Birmingham, Ala., has resigned to accept a similar position with the Fulton Bag & Cotton Mills, Atlanta, Ga.

J. L. Grant has accepted a position as overseer of the cloth room at the Aragon Mills, Rock Hill, S. C. He comes from Marion, N. C.

Edward Elliott has been promoted from second hand to overseer of spinning at the Catawba Mills, Newton, N. C.

T. F. Hoy has accepted the position as overseer of weaving at the Gluck Mills, Anderson, S. C. He comes from Seneca, S. C.

C. B. Johnson has accepted a position as overseer of one of the weave rooms at the Augusta Factory, Augusta, Ga. W. E. Wall has also accepted the position as overseer of one of the weave rooms at this same mill.

M. H. Shea, superintendent of the Crescent Worsted Co., Monson, Mass., has resigned.

F. S. Evans, president of the Panola Cotton Mill, Greenwood, S. C., has offered his resignation to the directors, and it is reported that it has been accepted.

Sam Leach has been appointed superintendent of the Lymansville Company, Lymansville, R. I. He comes from the Arlington Mills, Lawrence, Mass.

Wm. Walker, formerly superintendent of the Ottaquechee Woolen Co., of Evarts, Vt., has purchased the Dawson Woolen Mills of Dawson, Mass.

Fred S. Hunt, superintendent of the Martinsburg Worsted & Cassimere Co., Martinsburg, W. Va., has resigned to accept a similar position with a large mill at Louisville, Ky.

DEATHS.

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Dwight M. Collins, a retired manufacturer and financier of Pittsfield, Mass., died at his home, 71 Wendell Ave., January 29, at the age of 79 years. He was long associated with the Tillotson Woolen Mills and was the owner of the D. M. Collins Knitting Company until 1907, when he retired. He was a director of several banks, a life insurance company and had other large business interests. His widow and two sons survive him.

S. S. Smith, of Dallas, Texas, menager of the General Fire Extinguisher Co., of Texas, died suddenly at New Orleans, on January 20.

John G. Wright, one of the oldest and best known wool merchants in Boston, died at his home in Brookline, Mass., on January 31, at the age of 70 years. In 1884 he established the wool house of John G. Wright, Boston, dealing in domestic and foreign wools. Of late years the principal business of the firm has been the importation of Australian wools. Mr. Wright was a member of the National Association of Wool Manufacturers, Boston Chamber of Commerce, and many social organizations. He was also a trustee of several charitable institutions.

William J. Burnham, for over half a century connected with the Hill Mfg. Co., Lewiston, Me., died on February 18, following an operation for appendicitis. Mr. Burnham was born in Saco, Me., Dec. 22, 1835. After holding various responsible positions in the office of the Hill Mfg. Co., he was appointed superintendent in 1869 and held this position to the day of his death. Mr. Burnham was widely known through his prominency in Masonry, having attained the thirty-third degree and having held numerous offices in nearly every body. He was at one time head of the grand lodge of Masons and the Grand Commandery, Knights Templar, in Maine. He is survived by one son, Eugene L. Burnham.

William V. Parker, of the firm of Charles Chipman's Sons, 88 Leonard St., New York City, died on Monday, February 26, at the age of 46 years. Mr. Parker was born February 12, 1866, at Germantown, Philadelphia, Pa. He was the son of Joseph Parker, a prominent business man of that place. He was a graduate of the Germantown Academy, under the present Professor Kershaw, and married Miss Elizabeth V. Chipman, the oldest daughter of Charles Chipman, and admitted to an interest in the business. Mr. Parker was very prominent with all the wholesale dry goods houses throughout the country, commanding a large trade by his well known integrity and square dealing.

Robert M. Taggart, a retired cotton manufacturer, died at Orange, N. J., January 24, after a brief illness. He inherited the large estate of James Taggart, the millionaire cotton manufacturer, and was a 33d degree Mason.

Captain Thomas K. Bates, for 47 years master mechanic at the Slater Mills, Webster, Mass., died suddenly at his home at the age of 77 years.

Everett M. Sinclair, formerly agent of the Cocheco Mfg. Co., East Rochester, N. H., died at his home, recently, after a long illness at the age of 63 years. He was employed as overseer of the weaving department of the No. 3 Cocheco Mill for a long time, later he was promoted to superintendent, which position he held until 1894, when he succeeded the late Charles E. Manson as agent. This position he resigned in 1903. In 1905 he was appointed city assessor, which office he held at the time of his death. He was charter member of the Palestine Commandery, Knights Templar and belonged to many Masonic bodies. He is survived by a wife, a daughter and one son.

H. C. Jones, superintendent and general manager of the firm of H. C. Jones & Co., Conshohocken, Pa., died February 15. A widow and four children survive him.

Charles M. Ellis, for twenty years overseer of the card room at the Putnam Woolen Co., Putnam, Conn., died February 10, at the Day Kimball Hospital, Putnam, at the age of 57 years.

William J. McDevitt, formerly a hosiery manufacturer, died at his home in Atlantic City, N. J., after a long illness at the age of 78 years. While connected with the Thomas Dolan Carpet Mfg. Co., he patented a brush for sweeping threads from the looms, which yielded him a heavy royalty.

Enoch Waite, one of the first felt manufacturers in this country, died at his home in Franklin, Mass., February 13, at the age of 79 years. Mr. Waite, with his partner, Joseph Waite, came from England to Lawrence, 50 years ago, and then began the first manufacture of felt in this country. Mr. Waite afterward manufactured felt at Bush factory, then at Wrentham, and afterward opened four felt mills in Franklin and vicinity, which included plants at City Mills and Rockville. Twelve years ago he sold the Franklin Mill to the American Woolen Company and has been agent of that company at Franklin since. A wife, two sons and one daughter survive him.

John Shambow, owner and proprietor of the Shambow Shuttle Co., of Woonsocket, R. I., died suddenly, February 7th, at the age of 65 years. In 1869 he engaged in the manufacture of shuttles. He has seen the industry grow and develop and at the time of his death, sold shuttles in various countries throughout the world.

Samuel A. Clarke, president of the Clarke & Holsapple Mfg. Co., Cohoes, N. Y., died at his home in that city. Mr. Clarke was born in Cohoes in 1856 and was an alumnus of Union College. He was president of the Manufacturers' Association, composed of mill owners.

George A. Gray, president and treasurer of the Gray Mfg. Co., Gastonia, N. C., died on Thursday, February 8. By reason of the death of George A. Gray, the directors of the Gray Mfg. Co. have elected the following: president, L. L. Jenkins, vice-president, Thomas L. Craig; secretary and treasurer, J. H. Separk; superintendent, J. L. Gray.

Mill News

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires, facts and gossip of the trade are referred to the TEXTILE ADVANCE NEWS, issued weekly by the publishers of the TEXTILE WORLD RECORD, at $15.00 per year.

COTTON.

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New Mills.

*Connecticut, Putnam. Work has already been started on alterations and additions at the Monohansett Mill by the new Manhasset Mfg. Co. The tire fabric department will have equipment of about 20,000 spindles and, as noted previously, there will also be a department for manufacturing absorbent cotton. The tire fabric will be made from Sea Island cotton. Preparatory, combing, spinning, twisting, spooling and weaving equipment has been contracted for. The capital stock of this new company is $175,000. Edwin V. Livesey is president; R. H. Ballou, treasurer, and Wm. Bamber, superintendent.

*North Carolina, Bladenboro. A site for the new Bladenboro Cotton Mills has been purchased. It is on the north side of the S. A. L. Railroad and about three-quarters of a mile from the station. The stockholders have been called upon for 25 per cent. of their subscriptions. The bids of contractors for the erection of a mill will be closed shortly and it is expected work will soon be started. It has been noted previously that R. C. Biberstein of Charlotte is the architect-engineer and has prepared plans for a 10,000-spindle hosiery yarn plant. The capital stock of the company is $300,000. H. C. Bridger is president and treasurer; R L. Bridger, vice-president, and C. O. Bridger, secretary.

North Carolina, Charlotte. Plans being made by O. A. Robbins, treasurer of the Thayer Mfg. Co., will call for a 2-story mill for carding and spinning with a 1-story weave shed adjoining. The capacity will be 25,000 spindles and 500 looms for making fine grade goods of combed Egyptian cotton. A site has been purchased at the intersection of the Seaboard Air Line tracks and the Piedmont Northern Electric Railway. This concern has capital stock of $500,000. J. T. Lincoln of Fall River is president; O. A. Robbins, Charlotte, treasurer; Wm. E. Fuller, Jr., Fall River, clerk. Among the directors are Albert A. Jenks and Leon W. Campbell of Pawtucket; C. B. Skipper, who will be superintendent, and John H. Mayes of Charlotte.

North Carolina, High Point. W. H. Ragan is interested in building a 5,000-spindle mill at this place to manufacture coarse yarns. As noted previously, Mr. Ragan recently sold his interest in the Arlington Cotton Mills at Gastonia.

North Carolina, Newton. The mill built some time ago by the Ridgview Cotton Mills, which never was equipped with machinery, has been purchased by W. H. Shuford of Hickory, who will equip it with 5,000 spindles and preparatory machinery for making cotton yarns.

*Tennessee, Nashville. Active work of soliciting subscriptions to the capital stock of the proposed new cotton mill, which it is hoped to establish here, has begun, and it is said the proposition is meeting with the endorsement of many of the leading business men. C. O. Vantrese and the firm of Crockett & Stribling have charge of the solicitation of subscriptions. Thos. A. Miller of Greenville, S. C., who is the promoter, is in Nashville, actively cooperating with the local men who have been interested. As noted previously, it is planned to build a mill for making a fine grade of goods and to have equipment of 20,000 spindles and 500 looms. The capital stock will be $500,000, half of which will be invested by outside capital represented by Mr. Miller and half by Nashville investors.

Texas, Post. H. W. Fairbanks, who will have full supervision of the construction and operation of the cotton mill to be built here by C. W. Post, the cereal food manufacturer of Battle Creek, Mich., has completed preliminary details and will soon authorize the beginning of construction work on the buildings. A full report of this project, which is for the building of a 10,000-spindle cotton sheeting mill, has been given previously.

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Enlargements and Improvements.

*Alabama, Siluria. Enlargements at the Buck Creek Cotton Mills, formerly known as the Siluria Cotton Mill Co., are about completed. Reports of these enlargements have been given previously.

Connecticut, Danielson. The capital of the Connecticut Mills Co. has been increased to $100,000 and another mill has been leased which is about 200 feet from the present mill at Danielson. Considerable additional equipment has been ordered. This concern makes tire fabrics which are sold by R. J. Caldwell Co., commission merchants, at 374 Broadway, New York. R. J. Caldwell is the vice-president.

*Connecticut, Killingly. Some of the new machinery for the Killingly Mfg. Co. has arrived. The gas plant by which the mill was formerly lighted will be done away with and electric lighting installed.

Connecticut, Willimantic. The American Thread Co. will build during the year an electric power plant at the Willimantic Mills to occupy a site across the river and below No. 4 Mill. In addition it is said that one of the engines in one of the mills will be replaced. At an early date work is to be started on a new plant for the spool making department. This building probably will be located near the present plant.

*Georgia, Griffin. The following directors have been elected by the Georgia Cotton Mills: Clyde L. Kink, chairman, Bolling H. Jones, J. H. Nun-

nally, Sam D. Carter and D. W. Manley of Atlanta, Roswell H. Drake and H. H. Bass of Griffin, W. J. H. Pitts of Waverley Hall, and A. Minnis of Savannah. It has been noted previously that this company will operate the Spalding, Central and Boyd-Mangham Mills. About $25,000 will be expended for improvements.

*Maryland, Baltimore. All preliminary steps toward building the projected enlargement are being made by Wm. E. Hooper & Sons Co. Plans have been completed for a four-story brick mill, 146 by 240 feet, and bids have been invited. If built it will be equipped with electric lighting and steam heat, besides all the latest manufacturing accessories. An increase of perhaps 50 per cent. in the capacity of the plant will be made. There is little doubt that the enlargement will be carried through and that a start will be made within the next sixty days.

Massachusetts, Easthampton. In connection with the improvements at the plant of the West Boylston Mfg. Co., one story will be added to No. 4 Mill, 326 by 117 ft., and a new 3-story mill, 272 by 117 ft., will be built with a 4-story ell, 140 by 120 ft. It was noted previously that improvements would be made in the carding, combing and spinning departments and 4,400 spindles installed. The new construction will give a still further increase in the spinning department and enlarge the weaving department.

Massachusetts, West Warren. One hundred and twelve new automatic looms are being set up in No. 1 Mill of the Warren Cotton Mills of the Thorndike Co. New electric lights are being installed to take the place of old arc lights. Other recent improvements include extending the cloth room from 150 feet to 500 feet in length and the construction of a new machine and carpenter shop, a brick structure measuring about 150 feet long by 50 feet wide. In the dry house two new stock driers have been put in.

*Mississippi, Meridian. Officers have been elected by the Lauderdale Cotton Mills, a reorganization of the Meridian Cotton Mills, as follows: H. M. Threefoot, president; E. Cahn, Sr., vice-president; Marks Rothenburg, secretary and treasurer, and C. W. Hancox, superintendent. The capital stock is $130,000. This plant contains 12,000 spindles and 400 looms with complete dye house and steam power plant. It will be started up on chambrays, denims, ginghams, plaids and other colored cotton goods after improvements are made, which will cost approximately $10,000.

New Hampshire, Dover. New finishing machinery is being installed in the Cocheco Dept. of the Pacific Mills. Some of the old machinery that has not been used for several years is being taken out and shipped to Lawrence.

*New York, Lockport. Equipment is being installed in the new weave shed of the Niagara Textile Co., and the concern expects to have the new looms running next month.

North Carolina, Graham. An addition to be equipped with the nappers now in the mill will be built by the Travora Mfg. Co. The addition will be 64 by 60 feet. It has been noted previously that a weave shed would be built and some of the looms moved out of the lower floor of the present mill.

North Carolina, Kannapolis. The Cannon Mfg. Co. has decided to construct an additional building at the Kannapolis plant and install 5,000 spindles with looms to weave the product. Towels, crashes, sheetings and similar cloths are manufactured. The main plant is at Concord. Work on the addition has been started.

North Carolina, Lumberton. Additional cards have been ordered by the Lumberton Cotton Mills and the Jennings Cotton Mill Co. No further improvements are contemplated.

North Carolina, Rockingham. An order for new dyeing equipment has been placed by the Roberdel Mfg. Co.

*North Carolina, Thomasville. Manufacturing has been started in the recently completed addition of the Amazon Cotton Mills. A building, 100 by 125 ft., was constructed and 6,000 spindles with preparatory machinery installed.

*Rhode Island, Providence. Tentative plans are being prepared for the erection of a large weave shed at the Interlaken Mill's plant at Harris. The new building will be several hundred feet long, extending from Main St. to Mill St., and more than 100 feet wide, extending from the main factory to Broad St. Book cloths and similar fabrics are manufactured on present equipment of 26,000 spindles and 528 looms. The main office is in the Butler Exchange, Providence.

*South Carolina, Chester. One hundred new box looms for weaving dress ginghams will be installed in the Springstein Mills.

South Carolina, Liberty. An increase of about 40 per cent. will be made in the equipment of the Maplecroft Mills. Machinery contracts have been placed.

*South Carolina, Whitmire. Work is just beginning on the new mill for the Glenn-Lowrey Mfg. Co., which is to be equipped with 30,000 spindles and 700 looms for making print cloth. T. C. Thompson & Bros. will do the construction work. This company has capital stock of $1,250,000. W. Coleman is president; R. R. Jeter, treasurer; T. W. Coleman, secretary, and G. H. Leitner, superintendent. The plant is operated by electric power.

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Mills Starting Up.

*Alabama, Ellawhite. A. L. Morgan and associates, who purchased the Ellawhite Cotton Mills, have organized the Canebrake Cotton Mills with capital stock of $80,000 to operate the plant. The property was bought for $63,000. Officers have been elected as follows: S. T. Whitfield, president; F. Meyer, vice-president, and A. L. Morgan, secretary. The plant contains 10,000 spindles and will manufacture for the present 2/16s yarns. The mill is being overhauled and put in first class condition and the officers hope to finish this work and to start up within four to six weeks.

*North Carolina, High Point. R. F. Coble has

been engaged as superintendent of the new Pickett Cotton Mill and efforts are being made to have the plant equipped and everything in readiness to begin manufacturing by the first of March.

South Carolina, Newberry. Operations have been begun in the Oakland Cotton Mills. Walter H. Hunt is president of the company which has capital stock of $400,000. The equipment is 20,000 spindles and 500 looms for making sheetings.

WOOLEN.

New Mills.

*Massachusetts, Oxford. A new mill will be built during the spring by Andrew Howarth & Son to replace the Oxford Woolen Mills, recently burned. They plan to resume manufacturing some time in the summer. The equipment will consist of 5 sets of cards and 40 looms to manufacture fine white flannels and employment given to about 60 hands. There will be a dye house for dyeing raw stock and the plant will be operated by steam and water power. A. P. Howarth attends to the buying and Robt. B. Taft is superintendent. New equipment throughout will be required and no contracts of any kind have been placed.

*Pennsylvania, Easton. Plans have been made for the proposed plant of John Crossley & Sons, Ltd., the English carpet manufacturers, to be located at Valley Ave. and Line St., South Side, and estimates are now being secured from contractors. The main building will be two stories high, of reinforced concrete, 62 by 223 ft.; it will be constructed so that additional stories may be built on if an enlargement is necssary. The weave shed will be one story, with saw tooth roof, 209 by 128 ft.; the shipping room will be one story, 50 by 47 ft.; a reinforced concrete cistern or reservoir with a capacity of 350,000 gallons will be built for fire purposes and for water supply. Mr. Crossley will come to this country before the end of February, and it is expected that if the weather permits work will be started on the buildings early in March.

Pennsylvania, Philadelphia. The Penn Novelty Works, with Turner & Higgins as proprietors, have leased the two upper floors in the building at the N. E. corner of Howard and Palmer Sts. They have installed 10 looms which they are operating on carpets and rugs. The product is sold direct.

Enlargements and Improvements.

Canada, Nova Scotia, Amherst. New machinery equipment is arriving for the Hewson Pure Wool Textiles, Ltd., formerly the Hewson Woolen Mills. It was reported some time ago that the old mules would be lengthened out, but this plan was changed. Contract has been awarded for two new mules of 300 spindles each and a set of cards. A new napper, 2 spoolers and a washer and fulling mill are being set up and additional spoolers have been ordered. A new concrete floor is being laid in the basement of the new mill and the washing and dyeing equipment will be moved to this room.

*Canada, Ontario, Bancroft. David Fuller, proprietor of the Bancroft Woolen Mills, suffered a total loss in the recent fire. He carried no insurance. The mill will be rebuilt as soon as possible.

Maine, Skowhegan. As a result of the recent fire which destroyed the dye house of the Marston Worsted Co. it has been considered advisable to reorganize the company and secure additional capital. Through the efforts of the Skowhegan Board of Trade and some of the progressive citizens $10,000 has been raised locally which, with additional capital to be secured by E. B. Moore, the New York selling agent, and N. B. K. Brooks of Boston, the treasurer, will give $100,000 additional capital. Work was started during the week to clear the site of the dye house preparatory to rebuilding. It is planned to have the new building ready for occupation in about two months.

*Massachusetts, Cherry Valley. Reports that the Valley Woolen Mill will build a new weave shed are incorrect. The only change being made is the addition of 10 looms.

*Massachusetts, East Douglas. Improvements in the spinning department at the mill of W. E. Hayward & Co. consist of the installation of four modern spinning frames to replace old style frames.

Massachusetts, Franklin. It is reported the American Felt Co. will build a large brick plaster house on the land adjoining its plant, recently purchased.

*Massachusetts, Rochdale. The addition to the mill of E. G. Carlton & Sons is completed and the plant will be shut down for a few days in order that the shafting may be connected with the main building. A full report of the changes have been given previously.

*Massachusetts, South Barre. More extensive improvements are being made and contemplated by the Barre Wool Combing Co., Ltd., than were given in the first reports. A pair of new water wheels are being installed in place of one new wheel, and this will largely increase the water power of the plant. Besides preparing plans for a large new spinning mill to be erected during the year for the Nornay Worsted Co., if business warrants this enlargement, plans are also being drawn for a large new storehouse to take care of the ever-increasing business of the combing company. A general store and post office and many other additions to the village are also planned. Francis Willey of Bradford, England, is president; F. Vernon Willey, also of Bradford, is treasurer, and R. G. Thompson is agent and buyer. The combing plant contains 59 combs and 52 worsted cards which are driven by steam and water power, electrically applied.

Minnesota, Duluth. The Patrick Woolen Co., F. A. Patrick Co., proprietors, are interested in new or second-hand machiney as fellows: a duplex burr picker, a rag picker, a lumper, a 36-inch automatic feed for wool washer, a dressing frame with compressor and beamer, 6 4 by 4 box, 25 harness, brake looms with 92-inch reed

space, a 240-spindle mule, and a 40 or 50-spindle filling winder. M. R. Weichert is manager and buyer.

*New Hampshire, West Swanzey. In addition to the installation of new looms, recently reported, 480 new spindles have been installed in the plant of the Homestead Woolen Co.

Pennsylvania, Philadelphia. It is reported that the branch plant at 11th and Diamond Sts., containing 44 looms, operated by Joseph Greer, will be removed to the main mill in Frankford. It is said that additional machinery will be installed in the dyeing and finishing department.

Pennsylvania, Philadelphia. F. A. Bockmann & Co. are increasing their equipment by the installation of 20 looms recently purchased by them at the sale of the Southwark Mills Co.

Pennsylvania, Philadelphia. The Andrews Mill Co. of Frankford recently purchased 32 looms at the Southwark Mills sale, which they are now removing and setting up preparatory to operating them in conjunction with the balance of their equipment.

Rhode Island, Ashaway. Five additional looms are to be installed by the Ashaway Woolen Co. Overtime work has been started in the carding and spinning room.

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Mills Shutting Down.

*Massachusetts, North Bellingham. The plants of the Charles River Woolen Co. in North Bellingham and Franklin are about to shut down. Both properties are for sale as the company will liquidate its affairs. Chas. L. Staples, the agent, has become superintendent for Dexter Richards & Sons Co., at Newport, N. H.

KNIT.

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New Mills.

*Canada, Ontario, Guelph. A building has been purchased by the Colonial Knitting Co. and manufacturing will be started in March with about 40 hands. Sweaters, fancy knit goods and similar lines will be made, and it is expected that eventually a worsted spinning department will be established. The capital stock is $100,000. Winthrop H. Moore, formerly connected with the sweater department, of Penman's, Ltd., is president, general manager and buyer, and John P. Summons is secretary. The plant will be operated by electric power.

Canada, Ontario, Toronto. P. N. MacGachen, 28-30 Wellington St., is arranging for the installation of knitting machines for making a line of high grade knitted neckties, which he will sell direct.

*Indiana, Union City. Preparations are being made by Frederick Batzer to manufacture hosiery. Mr. Batzer's address is 408 South Howard St.

Massachusetts, Boston. A new concern known as the National Knitting Co., Inc., has been granted a charter with capital stock of $20,000. D. M. Gold is president and buyer, and Louis Lotow, treasurer. A plant for manufacturing men's, women's and children's sweaters and hand crocheted caps has been established at 386 Harrison Ave.

New York, Brooklyn. A knitting plant has been established at 427 Hart St. by men who will operate under the name of the Phoenix Knitting Mills. Sweater coats and aviation caps will be the chief products.

New York, Brooklyn. Twelve knitting machines have been installed at 913 Gates Ave. by a new concern known as the Milton Mfg. Co. and are being operated on a line of knitted silk neckties.

*New York, New York City. Dorfman Bros. have installed 10 latch needle knitting machines and 2 flat knitting machines at 195 Allen St., and are manufacturing cotton and silk knitted neckwear, operating by electric power. Crocheted silk, artificial silk and cotton yarns are bought. Abraham Dorfman is the president and buyer.

New York, New York City. The Phillips Knitting Mills, 285 Broadway, have installed 10 knitters, on which they are manufacturing high grade knitted silk neckwear.

North Carolina, Robersonville. It is reported the Robersonville Hosiery Mfg. Co. is to install hosiery machinery. The buildings have been completed for some time and recently the company has endeavored to interest a practical man with capital who would take charge.

Pennsylvania, Philadelphia. The Nuidea Knitting Company, with John L. Sutphen as manager, has installed knitting machines at 623 E. Westmoreland St., for manufacturing knitted silk ties and cravats, selling product direct. The plant is run by electric power.

Pennsylvania, Philadelphia. Stein & Sondheimer, occupying the third floor of the building at 112 North 12th St., are installing a number of knitting machines on which they will manufacture high grade silk neckties and sell direct.

Pennsylvania, Philadelphia. B. Weisberg is starting up the Crown Knitting Mills at 222 Market St., in which he will manufacture a line of high grade silk knitted neckties. His present equipment consists of 6 knitters and 10 sewing machines, which will be greatly increased as the business progresses. He will buy silk, art silk and mercerized yarns.

Pennsylvania, Philadelphia. S. Landau of Vineland, N. J., is reported as having leased two floors in the building at 10 South 4th St., in which he will install equipment for the manufacture of high grade silk neckties, the plant to be under the management of his son.

Tennessee, Rogersville. A. B. Rogan, of Rogan Son & Nice, wholesale and retail dealers in hardware, groceries, machinery, etc., is interested in establishing a knitting plant at Rogersville, for making sweaters and fancy knit goods. He is interested in necessary machinery equipment.

*Wisconsin, Eagle River. Operations have been started in the branch plant of the Saxony Knitting Works of Appleton. It is understood that 20 knitting machines have been moved from the main plant and are being operated on mittens and gloves. According to report, the entire equipment may be moved from Appleton to Eagle River, and other lines of knitted goods made.

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Enlargements and Improvements.

Canada, Ontario, Toronto. The Scott Knitting Co., T. Eaton Co. and J. Jenry Peters Co., all of Toronto, have installed knitting machines for making knitted silk neckties.

Canada, Ontario, Paris. It is reported that the Penman's Ltd., manufacturers of all kinds of knit goods of cotton, wool, worsted and merino yarns, have recently installed a number of knitting machines on which they are manufacturing a line of knitted silk neckties.

*Michigan, Bay City. The Vassar Knitting Works will begin operations next week in the new quarters at the corner of Jackson and 11th Sts. Practically all the machinery has been removed from Vassar, and is being installed on the third floor, which for the time being will be the only part of the building used. The company is understood to be making arrangements for additional capital which will enable it to increase its output. Men's, women's and children's cardigans, sweaters, fancy knit goods, mittens and gloves are manufactured.

Michigan, Grand Rapids. Five new knitting machines have been installed in the Swiss American Knitting Mills. This company recently took over the third floor in the building it occupies at Front and Allen Sts. They are making a patent union suit which is meeting with favor in the trade.

*New Jersey, Dover. Work has been started on the extensive enlargement to be made by Paul Guenther, Inc., manufacturers of men's and women's full fashioned silk hosiery. As noted previously, the capacity is to be increased about one-third.

New York, Brooklyn. S. Shiendelman & Co., proprietors of the Liberty Knitting Mills, 28 Boerum St., whose plant was destroyed by fire early in January, will rebuild in Brooklyn. For the present, a plant is being operated in Paterson, N. J., as noted previously, and this will be continued until the new plant in Brooklyn is completed. The New York address is 15-19 East 4th St.

New York, Brooklyn. The Williamsburg Knitting Mills at Bogart and Rock Sts., manufacturers of sweater coats on 50 knitting and 18 sewing machines, have recently installed a number of knitting machines on which they are making a line of high grade silk neckties.

New York, Brooklyn. Treinis Bros., manufacturers of athletic knit goods, contemplate building a factory to be equipped for bleaching and dyeing. They will have capacity for dyeing and bleaching about 2,500 pounds of woolen and worsted yarn per week, also for dyeing and bleaching cotton jersey cloth.

New York, New York City. Max Hirshberg, president and treasurer of the Northern Knitting Mills, has returned from abroad where he purchased a number of knitting machines for manufacturing women's and misses' sweaters.

*New York, Norwich. An increase has been made in the capital stock of the Norwich Knitting Co. from $100,000 to $150,000 to provide for a large increase in the present equipment, which will amount practically to doubling the production. As noted in an earlier report, the concern has bought the plant of the John Erskine Ribbon Co., which recently decided to liquidate, and will occupy the building. Men's and boys' union and two-piece suits in underwear and jersey sweaters are manufactured. J. B. Turner is president; J. O. H. Reed, treasurer, and Fred H. O'Hara, manager and buyer.

Pennsylvania, Bangor. Larger quarters on South Murray St. have been purchased by the Bangor Silk Knitting Co. Henry Berendsen is president and manager. It is intended to remove the equipment at once from the present plant to the new quarters, which were formerly used as a machine shop, and gradually to increase the number of hands employed from 35 to 80. The amount paid for the new quarters is in the neighborhood of $10,000. This concern manufactures men's, women's and misses' silk hosiery and has equipment of 11 knitting and 3 sewing machines.

Pennsylvania, Philadelphia. The Clark Manufacturing Co., now engaged in the manufacture of hosiery in the Cope Mill at Pastorius and Osceola Sts., Germantown, are installing a number of new knitters on which they will manufacture fine silk knitted neckties.

Pennsylvania, Philadelphia. The Federal Knitting Co., which installed a number of knitting machines on Ontario St., below 5th, has removed to the Fretz Building, 10th and Diamond Sts., where a number of new machines have been installed for the manufacture of knitted silk neckties.

Pennsylvania, Philadelphia. Several full fashioned machines which have been imported are being installed by the Royal Knitting Mills Co., 1427 Catharine St. This equipment will be used for making a line of high grade silk knitted ties.

Pennsylvania, Philadelphia. Sheplan & Sabul, 534 North 3d St., expect to move to the 3-story brick building at the S. E. corner of Randolph St. and Fairmont Ave., which they purchased in January, before the end of March. It is stated that no immediate increase in machinery equipment will be made.

Pennsylvania, Philadelphia. The Belmont Knitting Mills at 1302 W. Columbia Ave., report that they are very busy on knitted silk neckties. They have appointed agents in different sections of the country and are now arranging for the installation of a number of new knitters with a view of largely

increasing their production. They are selling direct.

Pennsylvania, Philadelphia. The Lebro Knitting Mills at 8th and Wallace Sts., operated on sweater coats, etc., which were recently burned out, are being put in readiness for reequipment. The building is being repaired and the equipment is also being put in good condition and will be installed as soon as the buildings are ready.

Pennsylvania, Philadelphia. Enlarged quarters necessitated by growing business and the installation of additional machinery, has compelled the Red Star Knitting Mills, manufacturers of sweater coats, to remove their plant from 3d St., above Arch, to 117 N. 4th St.

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Mills Starting Up.

New Hampshire, Nashua. A new concern known as Burns & Snow has purchased the plant and business of the Granite State Knitting Co. and expect to begin manufacturing next week, making knit worsted gloves for men, women and children. About 25 hands will be employed.

New Jersey, Camden. The Camden Knit Goods Company, with a capital of $125,000, has been chartered in this city. The incorporators are Louis Engle, C. Engle and S. Moscowitz. This concern will take over the plant formerly run under the name of the Merrimac Mfg. Co., located at West and Senate Sts., containing 10 knitters and 10 sewing machines, operated on women's ribbed vests, etc., and start it up at once on the same line of goods.

*New York, Whitesboro. Manufacturing will be resumed Monday morning at the Alliance Knitting Mills of Chas. A. Powell, recently damaged by fire.

SILK.

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New Mills.

New Jersey, Paterson. Oppenheimer, Stern & Hacker have started up a plant in the Ward St. Mills with Daniel Cook as superintendent, for the manufacture of chiffon veilings, the equipment consisting of 10 looms. The firm also operates 40 looms in another mill in Pennsylvania.

New York, Astoria. T. A. Robinson, until recently superintendent for M. C. Migel & Co., broad silk manufacturers, is starting a broad silk plant at Franklin and Munsen Sts. Thirty extra-wide looms will complete the first installation of machinery and only novelties will be made.

*Pennsylvania, Egypt. The mill of the new H. J. Feldhege Silk Mfg. Co., a building 160 by 60 feet, was completed in ninety days from the time of beginning construction work. Seventy-two looms will be installed at once, and later an increase will be made to 84 looms, which is the capacity of the new mill. A high grade of silk goods will be produced. Elvin T. Zellner is president and H. J. Feldhege, treasurer and manager. As noted in earlier reports, the company has capital stock of $30,000.

*Pennsylvania, Johnstown. It is expected the new silk mill of the Buser Silk Co. will be in operation within a month. Dan R. Schnabel, who represents the company locally, is securing necessary help. As noted previously, the Buser Silk Co. succeeds the Peerless Silk Co., Passaic, N. J., and has leased manufacturing space in Johnstown, and will operate about 40 looms here on silk ribbons.

*Pennsylvania, Northampton. D. G. Dery's new mill in this town has reached the third floor and part of the equipment has been ordered. This is one of ten mills now operated by Mr. Dery in different sections of this State and in New England.

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Enlargements and Improvements.

Pennsylvania, Catasauqua. The Catasauqua Silk Company are increasing their capacity by taking over more floor space in the building in which their plant is located.

*Pennsylvania, Fullerton. McBride Bros. are having the roof placed on their new addition and the machinery will be installed by February 15th. They are now manufacturing broad silks on 24 looms and the new installation will consist of 24 more.

Pennsylvania, Philadelphia. The Sauquoit Silk Co., Clarissa St. and Hunting Park Ave., will increase their equipment by the installation of 50 broad looms and will also make a further installation of looms built in their own shops.

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Mills Starting Up.

Pennsylvania, Chambersburg. John Mulligan of Summit, N. J., has purchased the Chambersburg Silk Mill, an idle property, and will operate it under the style of the Chambersburg Textile Co., a new corporation with capital stock of $125,000. Mr. Mulligan is president and chief stockholder. The buildings will be repaired and the machinery put into condition for manufacturing at once. The price paid for the property was $35,000. According to reports, a number of new looms are to be installed during the next few months and the plant will be made one of the most complete mills of its kind in Pennsylvania.

*Pennsylvania, Kutztown. D. G. Dery has started up the silk mill formerly operated by the Hill Silk Mfg. Co. and is making dress silks. The plant contains 135 looms. Mr. Dery has secured an option on the purchase of the property for $18,000 which he will probably exercise. Until it is definitely known whether the property is to be purchased there will be no changes. The main office of the D. G. Dery Mills is at Catasauqua.

MISCELLANEOUS.

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*Connecticut, Ansonia. Work has been started on the new 5-story concrete factory building for the Ansonia O. & C. Co.

*Connecticut, Bridgeport. Work has been started on the new brick mill for the Bias Narrow

Fabric Co. which will give 25,000 additional square feet of manufacturing space. F. C. Barton of New York is president, and H. R. Mitchell, superintendent. Plain and fancy bindings are made.

Connecticut, New Hartford. The Touraine Co., lace manufacturers, who will occupy part of the Greenwood Mill, have had plans drawn for a 1-story addition, 56 by 200 ft., to be of concrete construction and to be used for a weave shed. They are interested in information and prices on dyeing, bleaching, finishing and other machinery and supplies.

Massachusetts, Boston. A plant has not been secured by the American Cotton Waste Co., incorporated last December with a capital stock of $250,000 to sort and clean cotton waste. Edward Heaton and Joseph P. Gillette, the president and treasurer respectively, have in view two properties, neither of which, however, fulfills all the requirements and a further search is being made for a property which combines as many as possible of the facilities required in their business, one of which is a daily supply of 500,000 gallons of fresh water. Mr. Heaton was formerly engaged in the cotton waste business in England, but since coming to this country has been in the electrical business with Mr. Gillette at 31 Hartford St., Boston, under the style of the Copley Co. Some of the machinery equipment to be used in the cotton waste business will be imported and some will be built especially for the new concern. The address is the American Cotton Waste Co., 31 Hartford St., Boston.

New Jersey, Paterson. The Barbour Flax Spinning Co., Inc., has notified tenants in the Granite Mill to vacate in the spring, as the thread company proposes to establish a linen thread plant in the building. Originally it was intended to establish the new plant in Newark, but it has been finally decided to locate in this city. It is expected about 200 hands will be employed and that manufacturing will be started about June 1. The Linen Thread Co. controls the Barbour Flax Spinning Co.

New York, Brooklyn. Davis & Quick, dyers, bleachers and finishers of cotton and cotton and silk goods, will increase their capacity by building a large addition. Work on the enlargement will be started at once. The plant is located at 307-19 St. Marks Ave.

*New York, Cohoes. Organization has been effected by the Enterprise Garnetting Co., with Frank B. Graves of Albany, president; Chas. E. McKim, vice-president; James F. Kearney, Cohoes, secretary and superintendent, and Geo. C. Angus, treasurer. Mr. Graves will do the buying. As noted previously, this concern will manufacture garnetted shoddies in cotton, wool and merino, also cotton and wool waste for wiping and packing purposes, and has taken over the old 6-set sweater mill formerly operated by the Roff Underwear Co. Manufacturing will be started April 1 with 9 garnetts, 7 pickers, 1 waste picker, 2 dusters, 1 burr picker, 1 lapper and 6 cards.

New York, Minetto. A new boiler house will be constructed by the Minetto-Meriden Co. at an estimated cost of $35,000. The building will be approximately 100 feet square.

*Pennsylvania, Allentown. Work of doubling the local plant of the National Silk Dyeing Co. is under way. The office is in the City Trust Bldg., Paterson, N. J. R. Gaede attends to the buying and Edward F. L. Lotte is general manager.

Pennsylvania, Philadelphia. The Fidelity Finishing Works, of which William Melcher is the proprietor, located at Trenton and Allegheny Aves., have recently installed new shearing machinery and also equipped a new department for the bleaching of cotton, woolen and worsted fabrics, which they are also dyeing and finishing. The plant is being operated to its full capacity with H. L. Webster as superintendent.

Pennsylvania, Philadelphia. Day & Zimmerman, engineers, have been granted a permit for the erection of the new $100,000 building to be erected for the Hess-Bright Manufacturing Co., who are about to have erected a large plant at the corner of Front St. and Erie Ave. The building will be two stories, 203 by 38 feet, with a wing 203 by 180 feet. The Hess-Bright Company are engaged in the manufacture of ball bearings and ball bearing hangers, which are now being extensively supplied by them to the textile trade.

Pennsylvania, Philadelphia. The new addition for the Westmoreland Dye Works at 1915-27 E. Westmoreland St., will be equipped for the dyeing and printing of worsted tops on the Vigoureux system. The operation is now under way and the building is expected to be completed within a short time.

Pennsylvania, Philadelphia. I. H. & L. H. Goodman of the firm of Goodman-Hinlein Co., now located at 13th and Callowhill Sts., are arranging for the erection of a new eight-story factory building at Juniper and Vine Sts. The plans provide for a brick and concrete structure, 100 by 100 feet, to cost in the neighborhood of $100,000. Messrs. Goodman Bros. & Hinlein are manufacturing dress and millinery trimmings which they sell direct.

Pennsylvania, Philadelphia. Plans have been posted for an addition, 50 by 50 feet, to the plant of Weimar Brothers, manufacturers of tapes and narrow fabrics at 2046 Amber St.

*Pennsylvania, Reading. It has been noted that Lesher & Smith recently acquired the building at 316-320 Bingamen St., and would equip it for bleaching cotton piece goods and hosiery yarn. Operations will be started with 15 hands under the style of the Reading Bleach Works, Lesher & Smith, proprietors. The capacity is to be 9,000 pounds daily.

Rhode Island, Pawtucket. An addition will be built to the plant of the new Prospect Finishing Co. during the next month. This concern was recently incorporated with capital stock of $100,000 and took over the plant formerly occupied by the Berry Spring Bleachery. Operations were started

this week doing warp mercerizing, dyeing and bleaching of all yarns. Joseph Quarmby is president and Frank G. Rowley is treasurer and buyer. The plant is located on Beveridge Hill Ave.

*Rhode Island, Pawtucket. Alfred L. Lustig, general manager of the new Acme Finishing Co., is now engaged in getting machinery for the plant. It has been noted that this concern will have capital stock of $225,000 and take over the former Harrison Yarn & Dyeing Co.'s mill on Front St. It is expected operations will be started some time in May, dyeing and printing fine fabrics, cotton and silk and cotton mixed for the general trade. Mr. Lustig was formerly connected with the Glenlyon Dye Works. Other officers are Frank H. Cranston, president, and J. E. Judson, treasurer.

FACTS AND GOSSIP.

Alabama, Opelika. We have learned that the Opelika Cotton Mills do not contemplate any increase in the immediate future. Rumors have been current that more machinery would be installed.

Alabama, Tallassee. At a meeting of the officials of the Tallassee Falls Mfg. Co., controlled by the Consolidated Cotton Duck Co., it was decided to dispose of several thousand acres of land on which cotton has been grown. The land is to be sold to farmers who will cultivate it and one man will not be allowed to buy more than he can cultivate.

*California, Sacramento. J. A. Manning is vice-president of the Ramie Fibre Co., a company which has been reported as being promoted by Harry H. Howard, 611 Clunie Bldg., San Francisco. Mr. Manning is quoted as stating that as soon as $25,000 has been paid in work will be started on plant to manufacture cloth from ramie. A. J. Smith, assistant secretary and treasurer of the company, joins with Mr. Manning in asserting that they expect to have the first unit of the plant at work in 60 days. Manufacturing sites in Sacramento are under consideration.

Canada, Ontario, Woodstock. At a meeting of shareholders of the Woodstock Textile Co. it was practically decided to reorganize the company. New capital will be secured to pay up the liabilities and provide some working capital.

*Connecticut, Elmville. Within two weeks it is expected the Elmville Worsted Co., a new concern incorporated last October with capital stock of $50,000, will be running to full capacity. There are 25 looms in the mill. Frank E. Holden of Woonsocket is president and treasurer, and James H. Barnett of Danielson, secretary and agent.

Connecticut, Elmville. The Glen Worsted Co. has started to work on a night and day schedule with prospects of a long period of work on this overtime basis.

Connecticut, Meriden. Joseph Bonville, a rug manufacturer, has received machinery to establish a small rug factory on South Colony St. He expects to be running in full by April 1, giving employment to from 10 to 12 hands.

*Connecticut, Middletown. The Woodhouse Silk Co., previously reported incorporated, will operate the mill owned by the York Silk Mfg. Co., which Cheney Bros. leased up to a short time ago. Subscriptions to stock of the new company are being solicited.

Connecticut, New Haven. An increase has been made in the capital stock of the Narrow Fabric Corp. from $200,000 to $250,000. Archer J. Smith is president and treasurer of this concern.

*Connecticut, New London. There will be no increase at the plant of the New London Wash Silk Co. as a result of the recent increase in the capital stock from $25,000 to $100,000.

Connecticut, South Manchester. Cheney Bros. have moved into their new office buildings on Hartford Rd.

Connecticut, Voluntown. Some departments of the Briggs Mfg. Co., manufacturers of cotton shirtings and combed and carded yarns, are being operated overtime to keep up with orders.

Connecticut, Willimantic. It is rumored that men have been here for the purpose of making tests of the water in the Willimantic and Hop Rivers to determine whether a large bleaching industry could be established in this vicinity. It is said that a concern to be known as the Amerinac Bleachery Co. plans to build a $250,000 plant for dyeing, bleaching and finishing cotton goods. Nothing of a definite nature is known of the project.

*Georgia, Atlanta. No additional equipment will be bought at present by the Exposition Cotton Mills. It was recently reported that the new weave shed, under construction since last September, has been completed.

Georgia, Hawkinsville. The sale of the Southern Cotton Mills to E. J. Henry, representing the bondholders for the sum of $30,000, has been confirmed by the court, despite the protest of J. C. Cooper, a large creditor.

*Indiana, Evansville. A favorable report has been made by the engineer recently employed by Mayor A. C. Rosencranz to determine whether the Evansville Cotton Mills could be operated profitably on cotton goods. The report states that coarse goods can be manufactured profitably and if the plant is started up, undoubtedly this grade of goods will be made. The plant contains 40,000 spindles and 900 looms.

Indiana, Michigan City. The Ideal Mat & Mfg. Co. has been incorporated with capital stock of $15,000 to manufacture floor coverings. The incorporators are E. M. Forbes, L. Logan and A. C. Kreighbaum.

Indiana, Monticello. The name of the Chicago Thread Mfg. Co. has been changed to the Thread Mills Co.

Maine, Hartland. The spinning department of the Linn Woolen Co., which has been shut down for some time, has been started up.

New Publications

(Any work noticed under this head can be obtained through the office of this journal.)

Color in Woven Design; by Roberts Beaumont, M. Sc., M. I. Mech. E., Professor of Textile Industries at the University of Leeds, England; 372 pages, 5 1/2 by 9; 2d edition; D. Van Nostrand Co., 23 Murray St., New York. Price $6.00.

The second edition of this work has been rewritten and enlarged. It is adapted for either a reference book or as a text book for teaching textile designing and manufacturing. The subject is treated under the following heads: Attributes of Colors, Contrast and Harmony, Color Standardization, Mixtures, Elements of Textile Coloring, Check Patterns, Simple Colorings, Compound Colorings, Fancy Shades Applied to Special Designs, Coloring of Combination Designs, Spotted Effects, Coloring of Double Weaves and Reversibles, Figured Textiles Colored in the Warp, Weft-Colored Figured Fabrics. There are numerous illustrations, including colored plates, which with the text is a very valuable addition to textile literature.

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Textile Design; by Thomas Woodhouse, Dundee Technical College and School of Art, and Thomas Milne, Lauder Technical School, Dumfermline; 515 pages, 4 1/2 by 7; MacMillan Co., 66 Fifth Ave., New York.

About two-thirds of this work consists of articles that have appeared in serial form in the Textile Manufacturer. These have been revised and additional matter added in order to cover the entire field of textile design. The authors have tried to include every type of textile fabric. There are 307 illustrations, which include 1,400 different designs. The subject is treated under the following heads: Plain, Twill and Sateen Weaves; Mock Leno, Huckabucks, Honeycombs, etc.; Crepes and other Ground Weaves; Spiders; Herring-Bones, Diamonds and Diapers; Dices; Spots; Damasks, Checks and Small Effects; Compound Fabrics; Double Weft-Faced Fabrics; Backed Cloths; Spot and Simila- Isolated Effects Produced with Extra Warp and Weft; Double Cloths; Three and More Ply Fabrics; Velvets, Plushes and Similar Warp-Pile Fabrics; Brussels, Wilton, Tapestry, Royal Axminster, etc.; Turkish Toweling or Terry Fabrics; Weft Pile Fabrics; Bedford Cords, Piques, Toilet Covers, etc.; Gauze and Leno Fabrics; Silk Picture Designs and Fabrics.

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The Rise of Scotch Tweed Technique; by Dr. Thomas Oliver, director of the South of Scotland Technical College, Galashiels, Scotland; 63 pages, 7 by 10; Craighead Bros., Galashiels. Price 50 cents.

The author begins with an historical sketch of the Scotch tweed industry and gives an account of the development of textile education in Scotland. The remainder of the work is devoted to information regarding the South of Scotland Technical College, showing views of the school, also photographs of prominent men connected with the Scotch trade.

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Compendium of the Chemistry of Dyeing (Kompendium der Farberei-Chemie); by Prof. Antonio Sansone; 333 pages, 6 by 9, 14 sample cards; A. Hartleben's Verlag, Vienna, Austria and Leipzig, Germany. Price $5.

This book finds its justification in the extraordinary progress of chemical research during recent years. The author is well known as the director of the dyeing school at Manchester, England, and the author of a number of technical works, including The Printing of Cotton Fabrics and Progress in Dyeing and Calico Printing. The present work is divided into the following sections: Historical Sketch, Textile Fibers, Accessory and Chemical Products, Dyestuffs, Preparation of Textile Fibers, Use of Dyestuffs, Fastness of Colors, Color Theories, Machinery and Appliances. The work also includes 14 sample cards on which are mounted 168 dyed samples of cloth.

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BUSINESS LITERATURE

The Johnson Friction Clutch as Applied in Machine Building; The Carlyle-Johnson Machine Co., Manchester, Conn.

An attractive 40-page catalogue giving testimonial letters from satisfied users of the Johnson friction clutch. It also illustrates the different styles of machines to which the clutch can be applied. This clutch is small and compact, very powerful for its size, easily operated, adjusted and lubricated. A copy of this catalogue will be sent on request to designers or builders of machinery of any kind.

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"Ingeco" Engines; International Gas Engine Co., Cudahy, Wis.

A 64-page catalogue describing and illustrating the complete line of "Ingeco" high grade gas, gasoline, oil and producer gas engines, ranging in sizes from the smallest type of farm engines to the high power engines for large power plants. These engines represent the highest standard of engine design and construction.

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Otto; The Otto Gas Engine Works, 33d and Walnut Sts., Philadelphia, Pa.

A catalogue containing illustrated descriptions of the many types of gas engines built by the Otto Gas Engine Works. First comes a description of the construction of the Otto engine. This is followed by a series of illustrations and descriptions of the Otto engines used for various purposes, such as suction gas producers, pumping plants, hoists and portable engines. The extensive use of gas engines and of the Otto engine in particular is the best proof of the merits of this engine. A copy of this catalogue should be in the possession of every power user as it gives an excellent idea of the construction of the Otto engine and the many uses to which it is applied.

"Steam Tables for Condenser Work"; The Wheeler Condenser & Engineering Company of Carteret, N. J.

This book will be of practical service to engineers having to do with engine, turbine and condenser work. Attention is drawn to the three Steam Tables: No. 1 with vacuum referred to a 30-inch barometer as the independent variable, No. 2 with temperature as the independent variable, and No. 3 a table of properties of steam above atmospheric pressure with gauge pressure as the independent variable. None of these tables has ever been published before and were calculated especially for this book. In the remainder of the hand book the subject of vacuum measurements and the correction of vacuum gauge and barometer readings is discussed at more or less length.

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Here's the Proof; The Cork Insert Co., 16 State St., Boston, Mass.

Evidence of the merits of cork insert pulleys is supplied in this pamphlet in the form of testimonials from satisfied users of the pulleys. A reading of the statements and inspection of the names signed to them carries conviction as to the value of cork inserts for transmitting power.

Industrial Notes

NEW SOUTHERN AGENT

The Foster Machine Company, Westfield, Mass., builders of winding machinery, have appointed as their Southern representative John Hill, who is widely known throughout the entire South. Mr. Hill's offices are in the Third National Bank Bldg. of Atlanta, Ga.

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THE GOULDS MFG. CO.

At the annual meeting of the board of directors of The Goulds Mfg. Company, Seneca Falls, N. Y., held on Feb. 26th, all of the officers who have served during the past year were reelected. In the annual report on the business of the year, a slight increase over the preceding year was shown in both the gross amount of sales and net profits.

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A NEW CHAIN GRAPHITE

The Joseph Dixon Crucible Company of Jersey City has just put on the market a new chain graphite, especially intended for lubricating the chains of motor trucks and pleasure cars. This preparation is put up in sticks, cylindrical shape, 2 by 8 inches, encased in a neat cardboard carton and weighing about one pound each. It is made of the same material as the Dixon bicycle stick graphite with which every bicycle owner is familiar. It is by far the most convenient chain lubricant on the market, for a bar may be carried on the car ready for use at any time. To apply, it is simply necessary to rub the bar against the sprocket side of the chain. The "big stick" makes it easy to keep automobile driving chains in first class condition. Unlike oils and greases, it will not collect dust and dirt.

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THE SOUTHERN NEW ENGLAND TEXTILE CLUB

The February meeting of this club was held at Fall River, with the members of the Textile Club of Boston as invited guests. About three hundred members and guests were present. Dinner was served in the auditorium of Music Hall, which was decorated for the occasion. Among the decorations were blue and white Marseilles quilts bearing a woven reproduction of the seal of Fall River. After the dinner President Dimick, who presided, introduced R. S. Milliken, president of the Boston Textile Club, who in an appropriate speech thanked the hosts for the hospitalities extended. The next speaker was Congressman William S. Greene, of Fall River, who had come from Washington to attend the meeting. Mr. Greene referred particularly to the tariff question and assured his hearers that no bill revising the textile schedules which was not based on the report of the Tariff Board would receive President Taft's signature.

The next speaker was Stephen N. Bourne, agent of the Dundee Mills, Hooksett, N. H., who was introduced as the oldest active cotton manufacturer in the country, being over 81 years of age. In addition to speaking there was music by the Harvard Quartet, also a sketch by two colored vaudeville artists.

All present agreed that this was one of the most enjoyable meetings of the Southern New England Textile Club. Much credit for the success of the occasion is due to the committee on arrangements of which Alexander Makepeace, superintendent of the Borden Manufacturing Co., was chairman, the other members being: John Holt, superintendent, Luther Manufacturing Co.; Henry Ashworth, of Ashworth Bros.; A. N. Hathaway, of the Union Belting Co.; Charles B. Chase, superintendent, Stevens Manufacturing Co.; James A. McLane, superintendent, Hargraves and Parker Mills; N. A. Batchelder, superintendent, Lincoln Manufacturing Co.; George E. Prest, superintendent, Bourne Mills; John T. Balmer, superintendent, Merchants' Manufacturing Co.; Joseph W. Bailey, superintendent, Davis Mills; John C. Smith, superintendent, Chace Mills; Richard G. Riley, H. B. Wetherell and L. S. Chase.

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ANOTHER STOREROOM FIRE

A watchman of the Blackstone Webbing Co., Pawtucket, R. I., recently discovered an extinguished fire. A frozen water pipe between a brick and a wooden wall in the boiler house had been thawed out. A spark had apparently been left, which smouldered in oily waste and set fire to a small storeroom in which belt and pipe tools, and the room itself, were somewhat damaged. Two Grinnell automatic sprinklers had opened and the fire was entirely out when discovered.

CELEBRATION OF FIFTIETH ANNIVERSARY

In honor of the fiftieth anniversary of the founding of the company, The Lunkenheimer Company, of Cincinnati, O., tendered their employes and families an elaborate entertainment and dance, Saturday evening, February 17th. Over 4,000 people attended. The event was given at the O. N. G. Armory, which is the largest hall for events of this kind in Cincinnati.

In 1862, when the late Frederick Lunkenheimer laid the foundation of the company, it was but a small one-man shop. By the production of only the highest grade of engineering specialties, he created a demand for his products that soon necessitated larger workshops and more men. This increase in space and employes has continued until today The Lunkenheimer Company occupies large factories covering many acres of ground and in which are employed 1,500 men. The products of the company are extensively used all over the world. Not only is The Lunkenheimer Company one of the largest manufacturers of high grade engineering specialties in the world, but it produces a great variety of these articles, chief among them being brass, iron, semi and cast steel valves, water columns and gauges, ground key work, whistles, injectors and ejectors, lubricators, oiling devices, oil and grease cups and automobile and motor boat specialties.

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ANOTHER COTTON FIRE

An unusual case of successful operation of automatic sprinklers occurred in connection with a recent fire in the inclined trunk of an opening room of the Pee Dee Mfg. Co. The Gravity tank for water supply was empty at the time the fire started, as it was being painted on the inside. The pipes of the system, however, contained water, and the automatic action started the fire pump. Eleven Grinnell sprinkler heads opened and, in spite of the handicap due to the lack of water in the gravity tank, the fire was quickly extinguished.

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DELIVERIES WANTED

Napier & Herrick, selling agents for underwear, of New York, report that customers are calling for very prompt deliveries and anticipating the dates previously set. Two large jobbers who ordered goods last June for December and April deliveries, have called for immediate delivery of the balance up to and including their April allotments.

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REMOVE MAIN OFFICE TO BROOKLYN

The Champlain Silk Mills announce the removal of their main office to New York City, at their mills in Brooklyn. This move is made so as to afford better facilities for serving their customers. They desire that hereafter all communications shall be addressed to them at 500 Driggs Ave., Brooklyn, N. Y.

BOILER COMPOUND FOR GOVERNMENT USE

The Geo. W. Lord Company has been awarded the U. S. Government contract for 1912 for marine boiler compound, amounting to 125,000 pounds. This is an excellent testimonial to the merits of the Lord compound. For almost half a century the Lord Company have devoted practically their entire efforts to pushing the sale of their goods in the stationary field, but their organization has been enlarged to such an extent recently that they are now in better position than ever before to branch out into several fields that have not had the benefit of their system of water softening and purification in the past. Not only have they increased their facilities for manufacturing and selling water-purifying chemicals, but they have also invaded the filter field with an apparatus that is absolutely automatic in its operation, a description of which appeared in our February issue. This puts them in position to supply the needs of their patrons with whatever system is best adapted to the conditions existing in their individual plants.

If chemicals can be supplied that will remedy the trouble without the necessity of putting in a filter, this will be recommended, but where filtering apparatus is necessary it will be found that the Lord type offers one of the most economical to install, because of its simplicity, and at the same time one of the easiest to operate, as the turning of a valve sets the whole system in operation, and no further attention on the part of the engineer is required, except to see that the chemical tank is kept supplied with chemical, and each night attend to drawing off of all impurities collected in the bottom of the filter. This is also accomplished by the mere turning of a valve. The Lord Company will send one of their filter catalogues on application.

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AUSTRALIAN WOOL-COMBING INDUSTRY

From Consul Augustus E. Ingram, Bradford, England

Some slight uneasiness is felt in Bradford over the bounty or subsidy paid by the Australian Government to the wool combers there, which is developing the industry, particularly in New South Wales. Bradford wool combers, who heretofore have had a large percentage of the Japanese trade in dry combed wool tops, now find that exports of Australian tops to Japan are steadily increasing. During 1911, $48,665 was available for these bounties and almost $39,000 was claimed and paid. The bounty allowed on exported tops for the years 1909, 1910, and 1911 was 3 cents per pound, and for 1912 and 1913 will be 2 cents. The law providing for this bounty lapses on December 21, 1913.

More than a year ago it was stated that a firm in Sydney that had previously been in the fellmongery business and scouring wool to be shipped to Europe was extending its plant for top making. The proprietor of the works said that from the shorn wool he was obtaining 39 to 42 per cent. of tops, 3 per cent. of noil, and one-half of 1 per cent. of seedy noil; three qualities of tops were being produced, 64s to 77s. All the output was being sold to Japan.

A British trade journal, commenting on this competition with one of Bradford's great industries, states that a Sydney firm has orders for 1,000,000 pounds of tops to be shipped to Japan from January to March. It also states, as illustrating the quick expansion of wool consumption in Australia, that an Australian firm of considerable means and standing is contemplating worsted spinning and manufacturing.

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INCREASED BUSINESS FORCES REMOVAL

The Union Button Sewing Company removed from 184 High St., Boston, to 394 Atlantic Ave., March 1st. This removal was made necessary by the growing demand for their new shank button sewing machines and their flat button or elastic stitch sewing machines.

Recent installations of the new shank button sewing machines for shank or covered buttons have been made in the following mills: Kingston Knitting Co., Boston; Oakes Knitting Mill Co., West Roxbury, Mass.; Wm. Wye Co., Needham, Mass.; and George Wye, Needham, Mass.

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LARGER QUARTERS FOR THE H. W. JOHNS-MANVILLE CO.

The rapidly increasing demand in Pittsburg and vicinity for the asbestos, magnesia and other products of the H. W. Johns-Manville Co., has necessitated a move from their present location in Liberty Ave., above Ninth St., to larger quarters. The Pittsburg branch now occupy the entire eight-story stone, reinforced concrete and steel building at the northeast corner of Wood St. and First Ave., which has been leased by them for a term of years. This building, 31 by 96 feet in size, totals in gross floor space approximately 23,808 square feet, and is one of the most substantial structures in the downtown section of Pittsburg.

NEW BUILDINGS OF THE GOULDS MANUFACTURING COMPANY, SENECA FALLS, N. Y.

The Goulds Manufacturing Company have just completed a group of four new buildings, located at the southwest corner of their No. 2 plant at Seneca Falls, and known as Nos. 10, 11, 12 and 13. This group of buildings will be used exclusively by the hand pump departments. As an example of up-to-date factory construction, they have several features of general interest, particularly in regard to heating and lighting.

The exhaust steam from the power plant is utilized for heating, and a Goulds' Fig. 824 1/2 challenge vacuum pump is used on the vacuum end of the system. Building No. 10 is heated by direct radiation and the return from this system, as well as those from Nos. 11 and 12, are handled by Warren Webster motor valves.

FIG. 1. THE NEW BUILDINGS OF THE GOULDS MANUFACTURING CO.

The heating plant for buildings Nos. 11 and 12 is housed in a separate building. It consists of a 200-inch Sturtevant steel plate fan, with a capacity of 60,000 feet of air per minute and a heater containing 12,000 lineal feet of 1-inch pipe. The heated air is distributed in the buildings through underground ducts. These buildings are lighted by 250 watt, General-Electric Tungsten lamps, spaced 16 by 25 feet.

Fig. 2 shows the general layout of the new plant. The castings leave the foundry from building marked 33 and pass into building No. 13 where they are sorted and stored until requisitioned for by the machine shop. From the rough casting storage the product is delivered, by the northwest door of building No. 12, into the machine shop, and passing through the various departments are machined and finally delivered to the northwest end of building No. 11. The finished store room is located in the two center bays in the west end of building No. 11, and all finished parts are passed through this department into the assembly department. The assembly department is in the two side bays adjoining the store room, and the pumps after being assembled, are delivered into the paint-

ing department in the east end of this building where they are painted. From the paint department they are delivered to the warehouse and there stored until drawn for shipment. The shipping department is on the first floor, and there the product is boxed and passed into the cars on trucks, the car floor being on a level with the shipping room floor. All materials are handled in such a manner that the least possible time is consumed between operations and so that all manufacturing space is utilized to the best advantage. The buildings were designed by the engineering department of The Goulds Manufacturing Company, under the direction of Messrs. A. L. McHugh, works engineer and H. H. Hall, supervising architect.

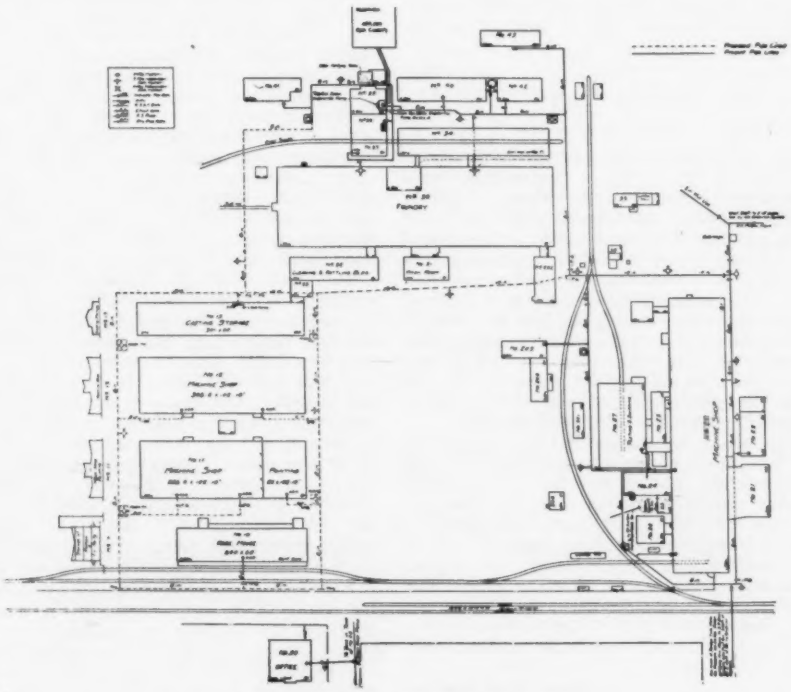

FIG. 2. PLAN OF NEW GOULDS PLANT.

WATER SUPPLIES FOR AUTOMATIC SPRINKLER SYSTEMS

Automatic sprinklers, unless backed up by a good and reliable water supply, have very little value for fire protection. In about half the cases where failures are charged up to the sprinklers, the water supply has either been shut off for some reason, or the supply in either pressure or volume is inadequate.

Generally speaking, pressure is more important than volume. Experience has shown that a single sprinkler operating under a heavy water pressure will frequently extinguish a fire under conditions which might defeat half a dozen sprinklers operating under a weak pressure. Not only does the heavy pressure result in pouring more water on the fire within a given period of time from one sprinkler, but this results in covering a larger area under the sprinkler head than with a weak pressure. Probably a further beneficial effect is found in the more vigorous bombardment due to greater average velocity of the drops into which the water is broken up.

In certain cases, however, volume of water supply assumes paramount importance. This is particularly true when dealing with baled goods in bulk, such as cotton or jute. In these cases, fires are very likely to smoulder for a long time before generating enough heat to burst into flame and set off the sprinklers. Not only this, but from the very nature of the combustible, it is necessary to drown out the area endangered, and to throw such a copious mass of water upon the bale on fire as will completely dampen the mass of material and cool it off to such an extent as to put the fire out. Under such circumstances it has been found necessary on occasion to keep the water running three or four hours before the fire is ultimately extinguished. It is thus seen that the circumstances under which the sprinklers are to be used have a very large bearing on the subject of water supply.

A SPRINKLER FIRE IN DANVILLE, VA.

The watchman of the Riverside and Dan River cotton mills, early in the evening, saw from the outside of the building a reflection of fire in the windows of the fourth floor of the main mill. Upon reaching the room where the fire started he found that two Grinnell automatic sprinklers had opened and extinguished the flames. The cause of the fire is unknown, but is said to have been caused possibly by friction. The principal loss was from water, due to the fact that the watchman was not acquainted with the location of the valve, resulting in a loss of time in shutting off the water.

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WHY COLORS "RUN"

From the Manchester Guardian

Dr. Knecht, Professor of Chemistry at the Manchester School of Technology, lectured recently at the Manchester University on "Fast and Loose Colors." He described an apparatus by means of which the fastness of colors to light can be tested in a comparatively short space of time, and during the lecture a demonstration of its use was carried out. The apparatus consists of a cabinet containing a mercury arc light, but a tube of quartz is substituted for the ordinary glass tube because glass stops the ultra-violet rays which are essential for the success of the experiment. A forty minutes' exposure of specimen fabrics to this light was sufficient for the lecturer's purpose.

Dr. Knecht began by saying he must limit his lecture to a discussion of the permanence of colors on dyed and printed fabrics, and he proceeded to point out that colors might be fast or loose to different influences. The most important common influences which affected dyed or printed colors were light, washing, ironing, rubbing, sea water, perspiration, and road mud. The brighter the light the greater, of course, was the effect on color. Household washing was done in very many ways—sometimes rationally and sometimes irrationally. He was afraid very few laundries washed rationally, and in some Manchester laundries he had discovered that bleaching powder was used along with soda. This was appalling, but the public seemed satisfied with the result, and instead of blaming the laundry they found fault with the manufacturer. (Laughter.) Not very many colors were altered by the flat-iron; turkey-red, for one, turned brown for a time after ironing, but resumed its normal condition if exposed to the air.

Some colors, like indigo blue, would not stand rubbing, and others would not stand the salt in sea water. The effect of perspiration depended on the idiosyncrasy of the individual because perspiration might be acid or alkaline. The effect of road mud depended upon the locality. In Derbyshire, the presence of limestone gave the mud the action of an alkali. All these facts were interesting to the general public, but there were others which the manufacturer alone had to take into consideration. The manufacturer wanted colors which would stand the processes of bleaching, stoving, carbonizing, milling, and hot pressing. In this connection Dr. Knecht said it was a pity that no definite standards were generally acknowledged for the fastness of colors. It was, in his opinion, the duty of an international committee, or the committee of an international textile congress, to establish such standards. Unfortunately there was as yet no international textile congress. A Textile Institute was established in Manchester last year, and other countries might copy Manchester's example, and in time an international congress might be formed. Then by agreement between textile manufacturers and dyers and printers a uniform standard of fastness in colors could be set up.

Fastness to individual influences, Dr. Knecht continued, did not guarantee fastness to all. A color might not be affected by light or by acids, but it might be absolutely loose to washing. Prussian blue, as soon as it was subjected to the action of soap, turned a dirty brown. It was erroneously assumed by many that the good old-fashioned dyes which were used before the introduction of "anilines" (so-called) were all fast, and that the introduction of coal-tar colors was not an advantage. As a matter of fact a very limited number of the old dyes could be called really fast, and it must also be remembered that with the enormously increased output of textiles natural dyes would not meet the demand. Unfortunately the first coal-tar colors were loose, especially to light. It was a case of a bad name sticking to a dog. Having referred to the color discoveries of modern times, Dr. Knecht went on to say that a new era was opening out. It was uncertain whether the impulse had come from the demands of the public or from the German and Swiss color manufacturers, but he was inclined to think it came from the color manufacturers. The public were very slow to move, and readily accepted the statement of a shopman that a particular color could not be obtained in a fast dye. The more the public were made aware of the fact that fast colors were obtainable in nearly every shade the better it would be for the dyeing and printing industries, for the public confidence in dyed and printed goods would thereby be gradually restored. Fast colors were still relatively expensive, but in a blouse length, for instance, which contained colored threads to the extent of 5 per cent. of the total cotton the extra price to the manufacturer for absolutely fast as against loose color would not exceed a halfpenny. Fastness to all influences was not always necessary. Thus underwear need not be fast to light, while carpet yarns need not be fast to washing with soap; billiard cloth need not stand sea water.

Dr. Knecht gave a short statement of the result of research work which has been in progress for some time in the School of Technology laboratories. The theory generally held about the action of light on colors was, he said, that of oxidation through the formation of ozone or hydrogen peroxide from atmospheric oxygen. This theory was applied indiscriminately to all colors, but it did not explain the bleaching by light of the large and important class of azodyes on cotton. Experiments undertaken with the mercury arc lamp showed conclusively that these colors, which were known to stand the action of oxidizing agents very well, but were easily destroyed by reducing agents, when dyed on cotton and exposed to light were destroyed by reduction and not oxidation, the cellulose of the fiber acting as the reducing

agent, and being thereby converted into oxycellulose. Basic dyestuffs and such dyestuffs as indigo were not readily acted upon by reducing agents, but were easily destroyed by oxidizing agents. When these were acted upon by the light the destruction was due to oxidation.

MILL SUPPLIES AND POWER TRANSMISSION SPECIALTIES

The Charles Bond Co., 520 Arch St., Philadelphia, Pa., invite the attention of textile manufacturers to their products, which consist of a general line of textile mill supplies and of power transmitting specialties. The business was established in 1888 by Charles Bond. By maintaining the quality of the previous business at a high standard and seeking to adapt them to the requirements of the trade the business has developed until it now consists of four companies, the Charles Bond Co.; the Bond Foundry & Machine Co., Manheim, Pa.; the Canadian Bond Hanger & Coupling Co., Ltd., Alexandria, Ont., and the Manheim Manufacturing & Belting Co., Manheim, Pa.

The business at the start was confined to textile mill supplies and in a few years was extended to include power transmitting specialties, such as shafting, hangers, pulleys and belting. The manufacture of leather belting was next added to the business. The company manufactures the Grundy flexible insulated coupling, which is being adopted extensively throughout the country. In 1901 they began to make the Bond patent universal shaft hanger. This development of the business soon became so extensive that it was necessary to transfer it to Manheim, where it is conducted by a separate company under the name of the Bond Foundry & Machine Co. The last named company are making a full line of power transmitting specialties and have recently added power presses for the purpose of manufacturing the "Lytestrong" steel hanger. Previous to 1911 the Charles Bond Co. were the sole American agents for the "Veelos" Balata belting which is manufactured extensively at Rochdale, Eng. In 1911 the Manheim Manufacturing & Belting Co. was organized to manufacture the "Veelos" belting at Manheim. The products of these various companies are in extensive use throughout the country. Further information regarding these products can be obtained on application.

*Washington, Ellensburg. Machinery is gradually being started in the new Washington Woolen Mills. The capital stock has been increased from $60,000 to $85,000, and later on, when running well, a cutting-up department is to be added and pants manufactured.

WOOLEN MANUFACTURE IN JAPAN

From U. S. Consul George N. West, Kobe

The Japanese are making great strides in the woolen industry, and by importing the latest modern machinery are striving to manufacture all classes of woolen goods that find a market in Japan. This they will probably do in a few years, with the exception of goods intended for men's outside wear, but at present the mills are making shirtings, both plain and fancy, and ladies' dress goods of various kinds. The two largest woolen manufactories in this consular district are the Japan Woolen Co., at Kobe and the Mousseline Weaving Co., at Osaka. From these was obtained the information on which this report is based.

The manufacture of woolen goods was first started in Japan at the Seju factory at Osaka in 1877, as an experimental station by the Government, and transferred in 1890 to the control of the War Office. Inadequate supplies of raw material and lack of skill and experience hampered the progress of the industry, and with the large importations of foreign goods the experiment did not meet with much success.

The following table shows the amounts of raw wool and woolen yarns imported into Japan, and the average value per pound of each:

	1908	1909	1910
Top Wool	3,896,003 lbs.	5,626,771 lbs.	7,833,531 lbs.
Value per pound	56 cents	53 cents	58 cents
Other wool	5,323,269 lbs.	7,661,561 lbs.	9,715,215 lbs.
Value per pound	23 cents	20 cents	22 cents
Woolen yarn for weaving	2,561,496 lbs.	2,973,915 lbs.	3,381,707 lbs.
Value per pound	66 cents	63 cents	72 cents

SUPPLY OF RAW MATERIALS

It is a remarkable fact that although only 15 per cent. of the total area of Japan is under cultivation, the rest of the land is not available for pasturage. It would appear at first thought that the extensive mountainous area of the country would afford splendid pasturage for sheep, but this does not exist, except in the extreme north, as the mountains are covered with a dense growth of bamboo grass, which it is impossible to eradicate, and this grass is wholly unfit for food. Therefore there are practically no sheep on the islands.

Top wool is imported from England, France, Germany and Belgium, and other wool from Australia and China. Woolen yarns are imported from Germany, France and Great Britain. Nearly all of the wool imported enters through Yokohama or Kobe. In 1910, of the total amount of wool imported, 30 per cent. of the top wool, 23 per cent. of raw wool other than top, and 46 per cent. of the woolen yarns for weaving entered through Kobe.

Wisconsin, Eau Claire. It is reported the old dam owned by the Eau Claire Linen Mills Co., whose plant was burned about two years ago, will be torn down and a new concrete dam constructed in its place. This is said to be preparatory to the rebuilding of the linen mill on a larger scale.

Recent Textile Patents

FABRIC TESTING Machine. 1,015,730. John R. Gill, London, England.

FABRIC BAND, Laminated Cohesive Interwound. 1,017,271. Lawrence A. Subers, Cleveland, O.

KNITTED FABRIC and Hosiery Made Therefrom. 1,018,134. Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE. 1,018,144. Frank Walters, Philadelphia, Pa.

KNITTING MACHINE. 1,016,233. Walter F. Rolston, Rockford, Ill.

KNITTING MACHINES, Sinker Actuating Means for Revoluble-Cylinder. 1,015,733. Joshua D. Hemphill, Central Falls, R. I.

KNITTING MACHINE. 1,017,705. August C. Timming, South Bend, Ind.

KNITTING MACHINE, Straight. 1,016,232. Walter F. Rolston, Rockford, Ill.

KNITTING MACHINE, Flat-bed. 1,015,668. Edouard Dubied, Couvet, Switzerland.

KNITTING MACHINE, Circular. 1,018,063. Edward E. Kilbourn, New Brunswick, N. J.

LOOM. 1,016,009. John W. Herbert, Natick, R. I.

LOOM SHUTTLE. 1,015,524. Albert B. Weissenborn, Appleton, Wis.

LOOM SHUTTLE. 1,017,782. William McCaslin, Hopedale, Mass.

LOOM FILLING Carriers, Tension and Take-up Mechanism for. 1,016,494. Robert A. Hammond, Sandwich, Mass.

LOOMS, Batten Structure for Narrow-ware. 1,017,076. Frederick Benz, Jr., Haledon, N. Y.

LOOMS, Bobbin-hopper for Filling Changing. 1,018,168. Randolph Crompton and William Lunney, Worcester, Mass.

LOOM FILLING Detector. 1,018,218. Edward D. Thayer, Worcester, Mass.

LOOM, Circular. 1,017,192. Christopher Whalley, Clitheroe, Eng.

LOOMS, Cloth Stop for. 1,017,273. Andrew L. Tolman, Thorndike, Mass.

LOOM Picker-spindle. 1,017,225. James Ma-tin, Manchester, Eng.

LACE MACHINERY, Bobbin-carriage and Bobbin of. 1,015,333. William B. Mitchell, Birmingham, Eng.

LOOM WARP Stop Motion. 1,015,593. William H. Spencer, Waterville, Me.

LOOM Weft-feeler Device. 1,017,055. Simeon S. Jackson, Readville, Mass.

LOOM, Shuttle-changing. 1,018,089. Sakichi Toyoda, Nagoya, Japan.

RIBBON WINDING and Reversing Mechanism. 1,018,176. Malcolm Ellis, East Orange, N. J.

SHUTTLE, Automatically-threading. 1,017,065. Edward S. Stimpson, Hopedale, Mass.

SPINDLE DRIVING Mechanism, Drill. 1,015,359. Frederick D. Taylor, Hartford, Conn.

WARP DRAWING Machine. 1,017,296. Charles Lea, Boston, Mass.

YARN CUTTER. 1,015,339. Benjamin H. Ponder, Camden, Ark.

YARN DAMPENING Device. 1,015,705. William N. O'Neill and Harry Parker, Jr., Columbus, O.

APPLICATIONS FOR REGISTERED TRADE MARKS

These applications have been officially published by the U. S. Patent Office, so that any person who believes a registration would interfere with established rights, may have an opportunity to object within the specified time.

48,113. Handkerchiefs. Mark: "San-velope." Owner: Carter & Holmes, Chicago, Ill.

58,696. Hosiery. Mark: Avalon. Owner: Elizabeth City Hosiery Co., Elizabeth City, N. C.

60,154. Silk ribbons. Mark: Vasilco. Owner: Virginia Silk Co., Richmond, Va.

60,210. Knit underwear. Mark: Stuttgarter. Owner: H. Leob & Co., New York.

58,088. Men's underwear. Mark: Akays. Owner: A. Kuehnert & Co., New York.

59,155. Cotton sheeting. Mark: Kiboko. Owner: Suffern & Co., New York.

59,639. Knitted and textile underwear. Mark: Onyx. Owner: H. Wolf & Sons, Cincinnati, Ohio.

59,657. Hosiery. Mark: Dearfoot. Owner: Paramount Knitting Co., Chicago, Ill.

59,683. Petticoats, nightgowns, etc. Mark: Petsy Ross. Owner: Benjamin & Johnes, Newark, N. J.

57,253. Cotton goods in the piece. Mark: Lonsdale Co. Superfine Cambric Muslin. Owner: Lonsdale Co., Providence, R. I.

59,853. Ribbons of silk, cotton and silk and cotton. Mark: Defender. Owner: The Nonotuck Silk Co., Northampton, Mass.

60,282. Cotton piece goods. Mark: Bates. Owner: Bates Mfg. Co., Lewiston, Me.

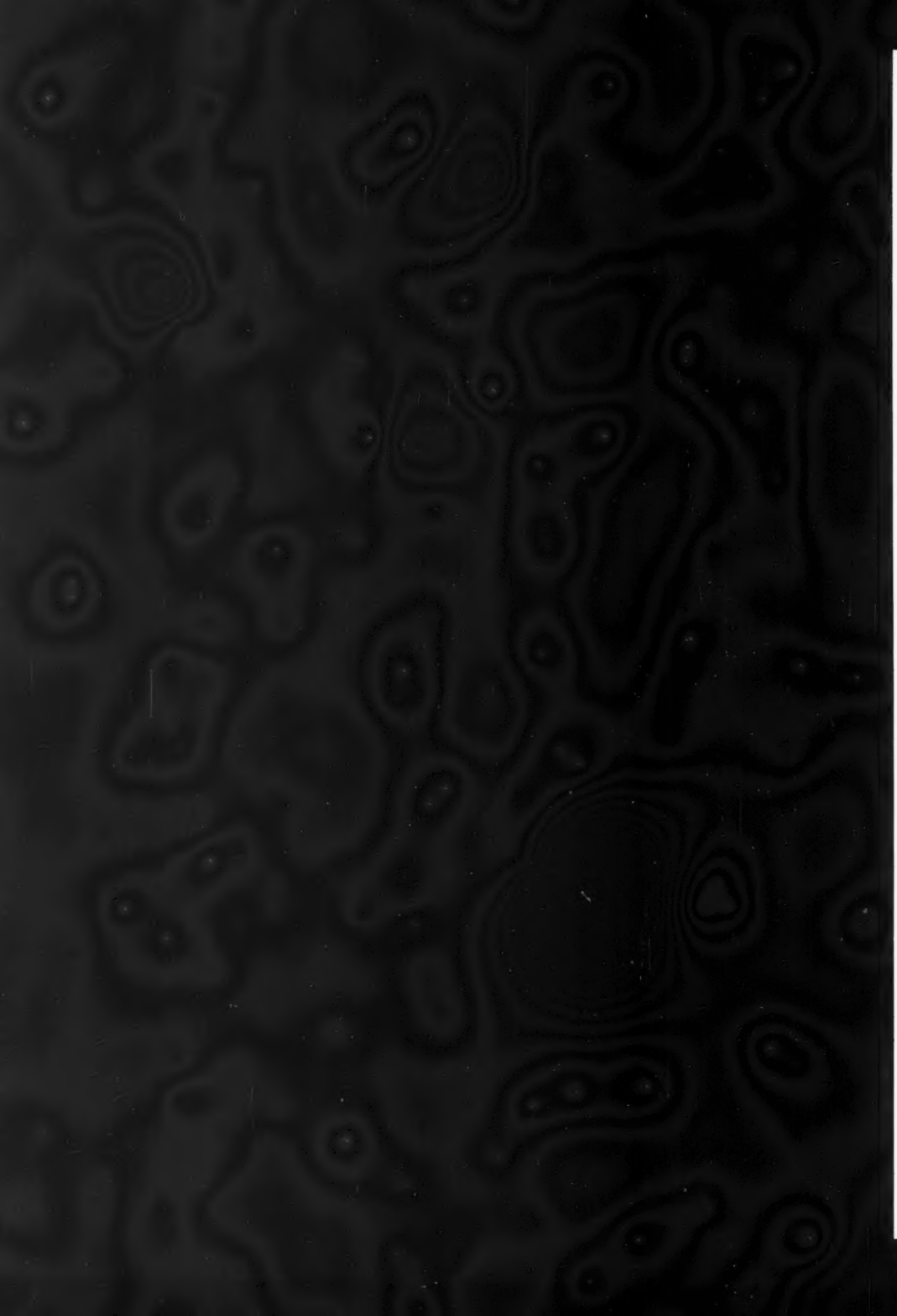
43,538. Cotton lace curtains. Mark: Ariston Double Woven Net. Owner: T. I. Birkin & Co., Nottingham, Eng.

59,809. Cotton, linen and woolen piece goods. Mark: Faultless. Owner: E. Rosenfield & Co., Baltimore, Md.

29,577. Ribbons. Mark: Square deal. Owner: Carson, Pirie, Scott & Co., Chicago, Ill.

57,241. Undershirts. Mark: Vanta Vest. Owner: Earnshaw Knitting Co., Chicago, Ill.

59,033. Dyed cotton piece goods. Mark: Ogeeco. Owner: Otto Goetze Co., New York.



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COTTON WOOLEN WORSTED MACHINERY

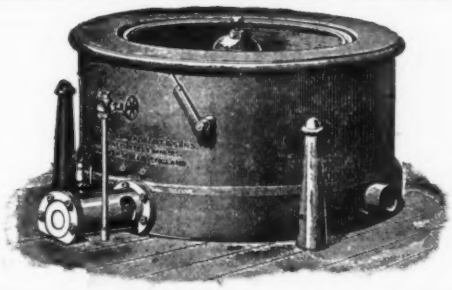
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



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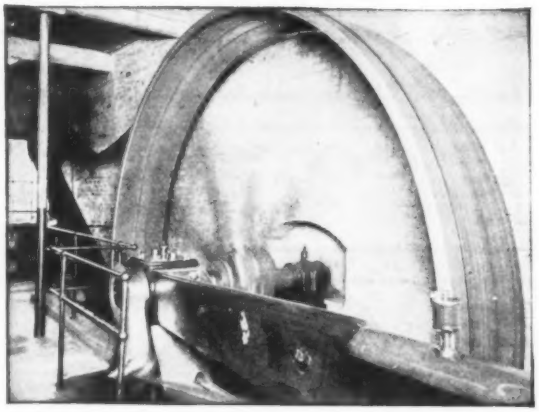
1628 lbs. Constant Pull without slip. Only Cling-Surface treatment permits this.



This 18 in. double leather belt, shown pulling full load runs at 3036 ft. per min. and carries 150 h. p. from a 14 ft. driver to a 42 in. wood pulley. Distance between centers 23 ft. No sign of slipping. See what the owner says:

"We have been using Cling-Surface for eight years with most satisfactory results on all sizes of belts and kinds of drives. When judiciously used it lessens tensions and increases efficiency as well as period of usefulness." T. S. Simms & Co., Ltd., St. John, N. B. Canada.

Get our literature and give Cling-Surface a trial.

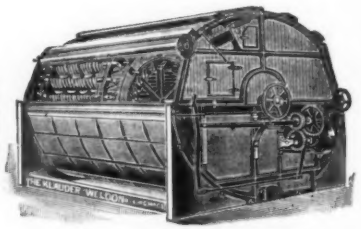
Cling-Surface Company

New York Boston Chicago Denver Atlanta Memphis etc 1051 Niagara Street Buffalo N Y 36

RAW WOOL AND COTTON MACHINE.

MACHINES sold on 2 MONTHS' TRIAL

YOU TAKE NO RISK

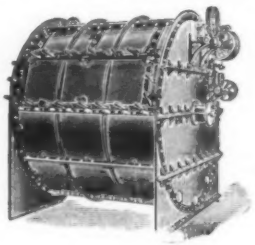


SKEIN AND SLUBBING MACHINE.

KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND *AMSTERDAM, N. Y.*

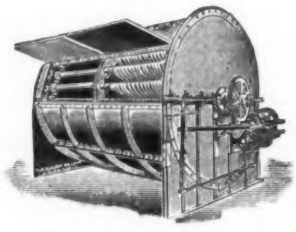
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN LABOR ALONE IN FROM 6 TO 12 MONTHS ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Accountants.
American Cost Accountant Co.

Air Compressor Outfits.
National Brake & Electric Co.

Air Moistening System.
—See Humidifying Apparatus.

Aligning and Leveling Apparatus.
Kinkead Mfg. Co.

Anti-Lug Straps.
Whitney & Crockett.

Architects and Mill Engineers.
Cramer, Stuart W.
Dean, F. W., Inc.
Ferguson, John W.
Main, Chas. T.
Weston, Robert Spurr.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Harwood, Geo. S., & Son.
Kitson Machine Co.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Speed & Stephenson.
Woonsocket Machine & Press Co.

Babbitt (Anti-Friction).
The Exeter Machine Works.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.

Bandings.
—See under Yarns.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Beamers.
Knapp, C. H.
Crompton & Knowles Loom Works

Belting.
Boston Belting Co.
Chicago Belting Co.
Gandy Belting Co.
Page Belting Co.
Williams, I. B., & Sons Co.
—See also Mill Supplies.

Belt Dressing.
Cling-Surface Co.
Dixon, Jos., Crucible Co.

Belt Lacing Machines.
Birdsboro Steel Fdry. & Machine Co.

Bindings.
—See Tapes and Braids.

Bleachery Eyes.
Boston Belting Co.

Bleaching Kiers.
Arlington Mch. Wks.
Birch Bros. (Albert Birch, prop.)
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Danker & Marston.
Electro Bleaching Gas Co.
Roessler & Hasslacher Chemical Co
Seydel Mfg. Co., The.

Blowers and Blower Systems.
Carrier Air Conditioning Co.
Autoforce Ventilating System.
Kitson Machine Shop.
Leiman Brothers.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Bobbins and Spool Machinery.
Defiance Machine Works.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh & Butler.
Lestershire Spool & Bobbin Co
Mossberg, Frank, Co.
Speed & Stephenson.
Tebbets, E. L., & Co.
U. S. Fibre Products Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
—See Steam Boilers.

Boxes, Box Shooks, Etc.
Pearson, J. T.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
—See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
—See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.

Brushing Machines.
Buhlmann, A. W.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Button Sewing Machines.
Union Button Sewing Mchn. Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
—See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Cap Spindles.
American Textile Specialty Mchy. Co.
Hall, F. A. & P.
Speed & Stephenson.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Szepesi, Eugene.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Buhlmann, A. W.
Howard & Bullough American Mach. Co.
Hartmann, Richard.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Schwartz, L. H. A., & Co
Speed & Stephenson.
Szepesi, Eugene.

Carded Cotton.
Blaisdell, S., Jr., Company.
Wonalancet Co.

Card Feeds.
—See Automatic Feeds.

Card Grinding Machinery.
Buhlmann, A. W.
Dronsfield Bros.
Entwistle, T. C., Co.
Hartmann, Richard.
Leigh & Butler.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Speed & Stephenson.
Richards, Atkinson & Haserick.

Carpet Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.
Textile Finishing Machinery Co.

Castings.
Farrel Foundry and Machine Co.
Goodnow, L. H., Foundry Co.
Schofield, Wm., Co.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chain Belts.
Link-Belt Co.
Morse Chain Co.

Chemists.
Little, Arthur D., Inc.

Chenille Machinery.
John Eppler's Machine Works.

Cling Surface.
Cling-Surface Co.

Clocks.
Pettes & Randall Co.
Watchman's Clock & Supply Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.

Cloth Expanders.
American Finishing Machinery Co.
Arlington Mch. Wks.
Birch Bros. Somerville Mach. Wks (Albert Birch, prop.)
Leyland, Thomas, & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Textile Finishing Machinery Co.

Cloth Testers.
Scott, Henry L., & Co.
Suter, Alfred.

Cloth Winders.
American Finishing Machinery Co.
Firsching, J. A.

Cloth Winding Attachments.
Boardless Clothing Winding Co.

Clutches.
American Tool & Machine Co.
Hunter, James, Machine Co.

Coal.
Darrow-Mann Co.

Coal Analysis.
Little, A. D., Inc.

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Combs (Wool and Cotton).
Crompton & Knowles Loom Works.
Hood, R. H., Company.
Emmons Loom Harness Co.
Leigh & Butler.
Philadelphia Textile Machinery Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Speed & Stephenson.

Condensers.
Dean Bros. Steam Pump Works.

Conveying Systems.
Kitson Machine Shop.
Sturtevant, B. F., Co.

Coolers (Air).
Power Specialty Co.

Cop Machinery.
Eppiers, John, Mach. Works.

Cop Tubes.
American Textile Specialty Mchy. Co.
Hall, F. A. & P.
Fairpoint Corporation.
——See Paper Tubes.

Copper Expansion Joints.
Badger, E. B., & Sons Co.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.
Textile Finishing Machinery Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile Finishing Machinery Co.

Corrugated Iron and Steel.
Scaife, W. B., & Sons.

Cotton.
Blaisdell, S., Jr., Co.
Charles, W. B.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Wonsalancet Co.

Cotton Machinery.
Altemus, Jacob K.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Atwood Machine Company.
Barber-Colman Co.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
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Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliot & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kitson Machine Shop.
Klauder-Weldon Dyeing Machine Co.
Leigh & Butler.
Lowell Machine Shop.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Potter & Johnston Mch. Co.
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Saco, Pettee Co.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
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Stafford Co., The.
Textile Finishing Machinery Co.
Textile Machinery Co.
Threlfall, Wm., Co.
Whitin Machine Works.
Wildman Mfg. Co.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh & Butler.
Potter & Johnson Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Cotton Softeners.
Bosson & Lane.
Charles, W. B.
Danker & Marston.
Harding & Fancourt, Inc.
Modoc Company.
Seydel Mfg. Co., The.

Cotton Waste.
Blaisdell, S., Jr., Co.

Cotton Waste Machinery.
Hartmann, Richard.
Kitson Machine Shop.

Counting Machines.
Beck, Chas., Co.
Root, C. J., & Co.

Crayons.
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

Creosote.
Carbolineum Wood Preserving Co.

Cutting Machines.
Artos Engineering Co.
Beck, Chas., Co.
Eastman Machine Co.
Firsching, J. A.

Cylinder Oil (Superheated Steam).
Power Specialty Co.

Disinfectants.
Seydel Mfg. Co., The.

Dobbies.
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

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Hood, R. H., Company.
Howard & Bullough American Mach. Co.
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Speed & Stephenson.

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Rull, William C.
Pearson, J. T.
Philadelphia Drying Mchy. Co.

Drying Cans.
Sandberg, Chas. E.

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Arlington Mch. Wks.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
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Cell Drier Machine Co.
Dragon Dyé Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
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Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
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Textile Finishing Machinery Co.
Tolhurst Machine Works.

Dusters.
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Dust Collectors.
Firth, Wm.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Dyers, Bleachers and Finishers.
Brophy's, T., Sons.
Davidson, John F.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
San-knit-ary Bleachery.
Standard Bleachery Co.
Utica Willowvale Bleaching Co.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Finishing Machinery Co.
Arlington Mch. Wks.
Autoforce Ventilating System.
Bemberg Co., J. P., Ltd.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Consolidated H. S. & L. M. Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Franklin Process Co.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh & Butler.
Leyland, Thos., & Co.
National Laundry Machinery Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Psarski Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Sturtevant, B. F., Co. (Drying).
Sucker, G.
Suter, Alfred.
Textile Finishing Machinery Co.
Threlfall, Wm., Co.
Tolhurst Machine Works.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Machine Co.

Dye Tubs.
——See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Arabol Manufacturing Co.
Ateaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Danker & Marston.
Electro Bleaching Gas Co.
Farbenfabriken of Elberfeld Co.
Harding & Fancourt, Inc.
Innes Speiden & Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Holliday Read & Sons, Ltd.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Wing & Evans, Inc.
Wolf, Jacques & Co.

Dynamos.
——See Electric Lighting.

Edgings.
——See Tapes, Braids and Edgings.

Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
Crocker-Wheeler Co.
General Electric Co.

Electrical Supplies.
Johns-Manville Co., H. W.

Electric Driven Pumps.
Dean Bros. Steam Pump Works.
General Electric Co.

Electric Fans.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

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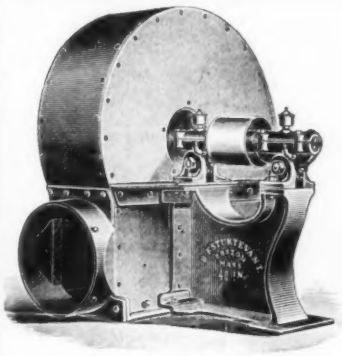


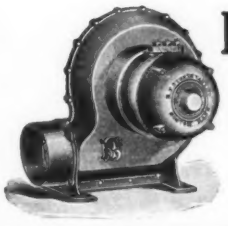
Sturtevant

Stock Fans Are Standardized

Duplicate parts always on hand for immediate shipment. Nearly every fan use for conveying, ventilating, exhausting, or drying, can be met by one of our stock fans always ready for immediate shipment from our works at Hyde Park, Mass., or from our Philadelphia and Chicago storerooms.

Many of the best mills in the country are equipped with Sturtevant Fans installed by our engineers to meet individual conditions. Our recommendations are not based on guess work, but on the results of years of experience in meeting similiar problems. Your requirements can probably be met by one of our stock fans. If not we build apparatus to order.

Correspondence invited.

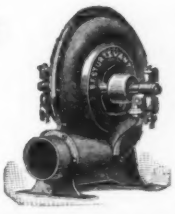


B. F. Sturtevant Company
Boston, Mass.

General Office and Works, Hyde Park, Mass.

Builders of
Fans, Fan Systems and Allied Products

759



Electric Hoists.
Crocker-Wheeler Co.
General Electric Co.

Electric Lighting.
Cooper-Hewitt Electric Company.
Crocker-Wheeler Co.
General Electric Co.
Holophane Co.
Johns-Manville Co., H. W.
Sturtevant, B. F., Co.
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General Electric Co.
Mechanical Appliance Co.
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Westinghouse Electric & Mfg. Co.

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National Laundry Machinery Co.

Elevators.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Otis Elevator Co.
Salem Elevator Works.

Emery Grinders.
Goodnow, L. H., Fdry. Co.

Employees' Time Recorders.
Pettes & Randall Co.

Engineers (Ventilating).
Autoforce Ventilating System.

Engines.
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Engine Pulleys.
Goodnow, L. H., Fdry. Co.

Engine Repairs.
Fishkill Landing Machine Co.

Engineers (Textile).
Buhlmann, A. W.

Exhaust Heads.
Kelley, Benj. F., & Son.
Sturtevant, B. F., Co.
Power Specialty Co.

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Feed Water Heaters.
Exeter Machine Works, The.
Kelley, Benj. F., & Son.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
American Water Softener Co.
Exeter Machine Works, The.
Kelley, Benj. F., & Son.
Scaife, W. B., & Sons.

Feeds.
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Felt Hardeners.
Farrel Foundry and Machine Co.

Felt Rotary Washers.
Rodney Hunt Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.
Hunt, Rodney, Machine Co.

Fender Boards.
Case Bros.

Filters.
American Water Softener Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Finishing Compounds.
—See Sizings.

Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.
Johns-Manville Co., H. W.

Fire Extinguishers.
Badger, E. B., & Sons Co.
Johns-Manville Co., H. W.

Fire Hose.
Eureka Fire Hose Co.

Fire Hydrants.
Norwood Engineering Co.

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Home Insurance Co.

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Badger, E. B., & Sons Co.

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Fluted Rolls.
Hood, R. H., Company.
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Leigh & Butler.
Riley, C. E., Company.
Speed & Stephenson.
Thurston, A. G., & Son.

Fly Wheels.
Goodnow, L. H., Fdry. Co.

Flyers.
Bodden, Wm., & Son, Ltd.
Hall, F. A. & P.
Hopkins Machine Works.
Howard & Bullough American Mach. Co.
Leigh & Butler.
Speed & Stephenson.
Textile Machinery Co.

Forges.
Sturtevant, B. F., Co.

Friction Clutches.
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Friction Cones.
Evans Friction Cone Co.

Fuel.
Darrow-Mann Co.

Fuel Economizers.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Hopkins Machine Works.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.

Furnace Bars.
Mellor Furnace Engineering Co.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

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Smith & Furbush Machine Co.

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Sturtevant, B. F., Co.

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Johns-Manville Co., H. W.
Power Specialty Co.

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Goodnow, L. H., Foundry Co.
New Process Raw Hide Co.

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Farrel Foundry and Machine Co.

Gear Cutting Machine.
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Sturtevant, B. F., Co.

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Sargent's Sons, C. G., Corp.

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Borne, Scrymser Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.

Harness Twine.
Moore, C., & Co.

Harness and Frames.
Garland Mfg. Co.
Gowdey, J. A., Reed and Harness Mfg. Co.
Steel Heddle Mfg. Co.

Heating.
—See Ventilating Apparatus.

Heddles.
American Supply Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

Hoisting Apparatus.
Economy Engineering Co.
Hunt, Rodney, Machine Co.
Yale & Towne Mfg. Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.

Hosiery Labels.
Kaumagraph Company.
Meyercord Co.

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Broadbent, Thomas, & Sons.
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Schaum & Uhlinger, Inc.
Schwartz, L. H. A., & Co.
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Hygrodeik.
Johns-Manville Co., H. W.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for loss of Profits).
Home Insurance Co.

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American Laundry Machinery Co.
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Jacquards.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.

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Case Bros., Inc.

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Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

Knit Goods, Finishing Machines, Crochet, Etc.
Artos Engineering Co.
Consolidated H. S. & L. M. Co.
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Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
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Ainslie Knitting Machine Co.
Boss Knitting Machine Co.
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"AMERICAN"

A VALUABLE TEXT BOOK ON ROPE DRIVING FREE

Chapters on the advantages of Manila Rope for the transmission of power, on systems of arranging drives, data on sheaves, directions for splicing, formula and data for calculating drives, practical notes on the care of ropes, and a detailed description of the many superior qualities of

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Manufactured by

American Manufacturing Co.

65 Wall St., New York City

We make a specialty of Manila, Sisal and Jute Bale Rope.

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Ludwig, H. Alban.
Mayo, Geo. D., Knitting Machine Co.
National Automatic Knitter Co.
New Branson Knitting Machine Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros. Co.
Walther, Otto.
Wilcomb Machine Co.
Wildman Mfg. Co.

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Acme Knitting Machine & Needle Co.
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Keystone Latch Needle Co.
Lamb Knitting Machine Mfg. Co.
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General Electric Co.
Johns-Manville Co., H. W.
Nernst Lamp Co.
Westinghouse Electric & Mfg. Co.
Westinghouse Lamp Co.

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Selas Co.

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Holophane Co.

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Electro Bleaching Gas Co.

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Mechanical Draughtsmen.
Sturtevant, B. F., Co.

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Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

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Street, J. F., & Co.
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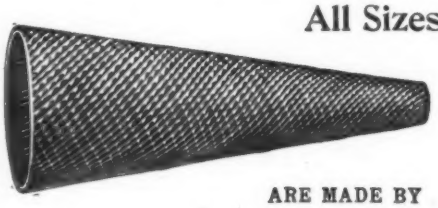

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The object of this advertising—the result that justifies the investment is: the education of the Textile World Record's subscribers to the value and merit, the economy and utility of the machines, devices, supplies or services that are offered for sale.

This advertising must, in order to be profitable, not only attract and interest you, but also create in you the desire and determination to possess or utilize the machine, device or service advertised.

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Most of the subscribers to the Textile World Record are men whose positions in the textile industry are such that in order to keep their mills and departments up to the highest point of efficiency, they must avail themselves of every improvement in machinery, and every new facility for increasing or bettering that part of the textile product for which they are responsible.

These men are the type that religiously watch and study the advertising pages of the Textile World Record that they may get new ideas and keep in touch with all new developments in the textile machinery or supply line. They realize that the advertising pages of the Textile World Record offer the most complete compilation of data concerning textile machinery, mill equipment and supplies, showing how conditions in the mill can be improved, the cost of production lessened, or the output increased by the use of modern inventions.

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At the earnest and repeated request of many of our customers, we have published three sectional vest-pocket editions of the Official American Textile Directory. One contains the New England States, one contains the Middle Atlantic States, one contains the Southern and Western States. Each directory contains the textile maps for the larger States in that book that appear in the regular editions.

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This edition of the Directory is not included in the combination subscription of Textile World Record and Directory.

Circulation Statement

Of this edition, 6,400 copies are printed and all are needed.

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Reading Glove & Mitten Mfg. Co., Reading, Pa.

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One Lever & Grundy, 40 spindle cop winder in good condition. One J. K. Altemus, slightly used beaming frame with cut marker and bell attached.

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Agent for the Weston Hydro Extractor.

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Geo. E. Hartwell, Northville, N. Y.

MEN WANTED

Wanted: salesman and mill supply agent calling on cotton and woolen mills to handle loom attachment on commission.
Room 406, 184 Summer St., Boston, Mass.

WANTED FOR KNITTING MILL

An experienced man to take charge of Knitting Mill. Must have money to invest in stock company. Inquire of

H. A MEYER,
Jeffersonville, Sullivan Co., New York.

KNITTING MACHINE FIXERS WANTED

Experienced Knitting Machine Fixers wanted on Invincible machines manufacturing hosiery. Good wages. Apply at once. MIDDLESEX CO., LOWELL, MASS.

WANTED.

An up-to-date experienced ribbed underwear superintendent willing to invest a small amount in a plant that is now closed. Correspondence solicited.

H. W. OTIS CO.,
Room 18-39, East 42nd St., New York

Boss Weaver Wanted.

Boss weaver and loom fixer to take charge of six jacquard looms mounted with the Verdol machine making ribbons and labels. For further information, address Employment Bureau, care Textile World Record, 144 Congress St., Boston, Mass.

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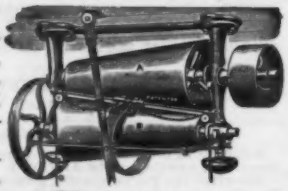

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prevents broken ends

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James Hill Manufacturing Co.,
PROVIDENCE, R. I

Situations Wanted.

The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufacturers who may be in need of such men may address them in care of Textile World Record, Boston or state their requirements directly, and the addresses of suitable men will be furnished without charge.

Mr. C. T. Donlevy, a practical mill overseer and superintendent, who has a wide acquaintance with mill men, gives special attention to this department. He would be pleased to hear from any of his friends who may be interested. Address Textile World Record, 144 Congress St., Boston, Mass.

WOOLEN SUPERINTENDENTS

Superintendent woolen mill; worked on cassimeres, dress goods, broadcloths, union goods, cotton worsteds, satinets, etc.; has had a number of years of experience; good reference.
5427, Textile World Record, Boston, Mass.

Superintendent (small mill), asst. supt. or overseer of weaving in woolen mill; worked on men's suitings, kersey overcoatings and fancy overcoatings; 45 years of age, married; will not go to Pa., West, South or Canada; good reference.
5426, Textile World Record, Boston, Mass.

Designer, asst. supt. or supt. of woolen mill; worked on all classes of woolens; 39 years of age, married; will not go West, South or Canada; good reference.
5433, Textile World Record, Boston, Mass.

Agent, supt., supt. and designer, or designer of woolen mill; has worked on fancy worsteds, piece dye and resist worsteds, all kinds of fancy woolens; single, double and treble cloths; is particularly good on novelties, Scotch effects and homespuns; familiar with American and English makes of machinery; 46 years of age, married; will not go South or to Canada; good reference.
5422, Textile World Record, Boston, Mass.

Superintendent of woolen mill; worked on cassimeres, dress goods, broadcloths, kerseys and worsted suitings; familiar with all American makes of machinery made and some English makes; 39 years of age, married; good reference; will not go to Canada.
5052, Textile World Record, Boston, Mass.

Supt. or Asst. Supt. in woolen mill; worked on beavers, kerseys, shawls, cassimeres, cheviots, thibets, dress goods, broad cloths, cotton warp goods and all face finish goods; familiar with nearly all makes of machinery; 39 years of age, married; good reference.
5035, Textile World Record, Boston, Mass.

Supt. and Designer, supt. or general manager in woolen mill; worked on almost everything from low grade cotton to broad silks, fine worsteds, both ladies' and men's wear, also cotton warps and woolen fillings; familiar with English and American makes of machinery; 42 years of age, married; good reference.
5237, Textile World Record, Boston, Mass.

Asst. Supt. or designer in woolen mill; worked on dress goods, high luster ladies' cloths, uniform cloths, overcoatings, serges, cotton worsteds, carriage cloths, etc.; familiar with American and German makes of machinery; 31 years of age, married; good reference.
5223, Textile World Record, Boston, Mass.

Supt. or Asst. Supt. in woolen mill; worked on unions, satinets, woolens, worsteds and flannels; familiar with worsted yarn machinery; weaving, finishing, woolen carding and spinning machinery; 30 years of age, married; will not so South; good reference.
5093, Textile World Record, Boston, Mass.

Agent, superintendent or designer in woolen mill; worked on anything in the wool, worsted and cotton line from 16c. per yard to $4.25; familiar with almost any makes of machines; 40 years of age, married; good reference; will not go to Canada.
5094, Textile World Record, Boston, Mass.

Superintendent or designer in woolen mill; worked on woolens, worsteds, cassimeres, dress goods, blankets, traveling rugs, shawls, military cloth, unions, etc.; familiar with old Crompton machines, also German makes of machinery; 31 years of age, married; will only go West or South; good reference.
5118, Textile World Record, Boston, Mass.

COTTON SUPERINTENDENTS

Superintendent or asst. supt. of cotton mill; worked on everything from numbers 3 to 120; has also had charge of the whole warp preparation including web drawing; familiar with all classes of machines, but prefers the Fales & Jenks, or Mason; 46 years of age, married; will not go West, South or Canada; good reference.
5417, Textile World Record, Boston, Mass.

Cotton Mill Superintendent; worked on awnings, denims, fancies, blankets, etc.; familiar with nearly all makes of machinery; 38 years of age, married; good reference.
5416, Textile World Record, Boston, Mass.

Superintendent of knitting mill or overseer of knitting in Southern or N. E. States; worked on cotton, wool, worsted, merino, silk, lisle, mercerized and silk plaited goods; has had experience also in underwear and all kinds of hosiery, misses', children's, infant's and ladies'; men's half hose, fancy lace and stripes; familiar with all makes of knitting machines; 45 years of age, married; good reference.
5429, Textile World Record, Boston, Mass.

Designer, supt. and designer or overseer of weaving in cotton mill; worked on cottons and worsteds, fancies, silk, both spun and raw, jacquards and dobbies, very coarse and very fine cottons, quilts, towels, etc.; familiar with all makes of machinery; 47 years of age, married; prefers the N. E. States; good reference.
5432, Textile World Record, Boston, Mass.

Superintendent yarn or cloth mill, or overseer of carding or spinning in cotton mill; worked on sheetings, shirtings, prints, seersuckers and grain bags; familiar with the Saco and Pettee revolving flat and roller cards and Saco, Pettee and Lowell spinning machines; 51 years of age, married; will not go to Canada; good reference.
3624, Textile World Record, Boston, Mass.

Supt. or Mgr. of cotton mill; worked on all kinds of fancy or plain goods, colored or bleached; familiar with all makes of machinery; 50 years of age, married; will not go to Canada; good reference.
5221, Textile World Record, Boston, Mass.

Superintendent of a cotton mill or large overseer position; worked on cotton yarns, combed and carded from 5s to 120s, high and low twist in cones, tubes, warps, jack spools, etc.; familiar with all makes of machinery; 35 years of age, married; will not go to Canada; good reference.
5276, Textile World Record, Boston, Mass.

Agent or superintendent in cotton mill, or superintendent of weaving in large mill; worked on prints, sheetings, drills, sateens, tire fabrics, pillow tubings, fancy or colored shirtings, cotton and silk fancies; familiar with the Howard & Bullough and Saco & Pettee machines, dressing room machinery and any kind of American or English looms; 40 years of age, married; will go anywhere for a good position; good reference.
5354, Textile World Record, Boston, Mass.

Superintendent or assistant of cotton mill, or superintendent of weaving; has worked on very coarse to very fine goods, from plain to jacquard lappets, lenos, etc.; familiar with all the standard makes of machinery and some others; 42 years of age, married; good reference.
5362, Textile World Record, Boston, Mass.

Superintendent of cotton mill; worked on American and Egyptian cotton, white and colored, also hosiery, cotton and waste stock; familiar with the Platts, Saco & Pettee, Mason, Fales & Jenks, American Machine Co. and Whitin machines; 41 years of age, married; good reference.
5345, Textile World Record, Boston, Mass.

WOOLEN WEAVERS

Overseer of Weaving in woolen mill, or weaving and dressing in small plant; worked on piece dyes, fancies and woolens; has had much experience on fine fancy worsteds; 38 years of age, married; good reference.
5423, Textile World Record, Boston, Mass.

Boss Weaver in woolen mill, asst. designer or second hand in large mill; worked on all classes of woolens and worsteds; familiar with the Crompton and Knowles looms; 30 years of age, married; will not go West or South; good reference.
5430, Textile World Record, Boston, Mass.

Second Hand of weaving in woolen mill, or would accept a good position fixing; worked on all kinds of woolens, fancy woolens, both ladies' and men's wear; familiar with the Knowles looms; 27 years of age, married; will only go to Mass., R. I. or West; good reference.
5410, Textile World Record, Boston, Mass.

Second Hand in weave room of small woolen mill; worked on woolens and worsteds; 37 years of age, married; will not go to R. I., Conn., Pa. or N. J.; good reference.
5424, Textile World Record, Boston, Mass.

Boss Weaver or second hand in woolen mill worked on woolens and fancy worsteds; familiar with the Crompton and Knowles looms; 32 years of age, married; will not go West, South or Canada; good reference.
5031, Textile World Record, Boston, Mass.

Boss Weaver or asst. supt. in woolen mill; worked on cassimeres, meltons, dress goods, worsteds, kerseys, blankets and flannels; familiar with the Crompton & Knowles looms; 38 years of age, married; will not go to Me., N. H., Vt., or Canada; good reference.
5238, Textile World Record, Boston, Mass.

Boss Weaver in woolen mill; worked on broad cloths, cloakings, beavers, sackings, flanneis, fancy woolens and worsted men's wear, etc.; familiar with Knowles and D. and F. machines; 46 years of age, married; will not go West, or Canada; good reference.
5216, Textile World Record, Boston, Mass.

WOOLEN FINISHERS

Overseer of Woolen or worsted finishing; worked on all kinds of woolen and worsted face finished goods; 40 years of age, married; good reference.
3344, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; worked on all classes of woolens, piece dyes, both worsteds and woolens from loom to case; has had an extensive experience on kerseys, beavers, as well as fancy cassimeres; familiar with all makes of machinery, also some German and English makes; 50 years of age, married; will not go West, South or to Canada; good reference.
5414, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; worked on kerseys, meltons, cassimeres, worsteds, cheviots and all kinds of dress goods; familiar with all makes of machinery used in finishing; 46 years of age, married; good reference.
5420, Textile World Record, Boston, Mass.

Boss Finisher in woolen mill; worked on dress goods, kerseys, cassimeres, worsteds and other goods; will not go South or to Canada; good reference.
5178, Textile World Record, Boston, Mass.

Boss Finisher in woolen mill, second hand or cloth examiner; worked on low grade woolens, worsteds, piece dyes and some on luster finish; familiar with the Parks & Woolson, Curtis & Marble shears, Hunter fulling mills and washers; 35 years of age; good reference.
5032, Textile World Record, Boston, Mass.

Boss Finisher in woolen mill; worked on men's wear, wool and fancy worsteds, serges, shoe and rain cloths, ladies' dress goods and bleaching; familiar with Parks & Woolson, Curtis & Marble, Hopkins, Hunter and all popular makes of machinery; 31 years of age, married; will not go West; good reference.
5207, Textile World Record, Boston, Mass.

KNITTERS

Superintendent of a knitting mill, or would accept position of traveling salesman; worked on women's, men's and children's fleeced rib, cotton, worsted and merino sweater coats; infant's silk, worsted and merino; also cotton ribbed wrappers and bands; familiar with the Scott & Williams, McMichael & Wildman, H. P. Snyder, Nye & Tredick, Davis & Furber nappers; Union Special, Singer, Wilcox & Gibbs, Industrial, Merrow, Union button and sewing machines, Payne winders, also loopers; 29 years of age, married; will not go to Canada; good reference.
5412, Textile World Record, Boston, Mass.

Superintendent or manager of a knitting mill; has worked on all kinds of underwear; all wool and wool mixes; can produce best plaited shirt on the market; familiar with all kinds of machinery; good reference.
5300, Textile World Record, Boston, Mass.

Superintendent or overseer in knit underwear mill; has worked on knit underwear, stitching and cutting; familiar with loopers and stitching machinery, Cooper, Crane, Scott & Williams and circular machines; good reference.
5280, Textile World Record, Boston, Mass.

Overseer of Knitting; worked on yarns: cotton 1/7 to 2/80; worsted 1/20 to 1/50; 6, 8, 10, 12 and 14 cut cylinders; familiar with the Scott & Williams, Stafford & Holt, Snyder & Fisher, Nye & Tredick and Wildman machines; 22 years of age, married; wishes to go West if possible; good reference.
5298, Textile World Record, Boston, Mass.

Boss Knitter on spring needles; worked on balbriggan, fleece flat work and single fleece; familiar with the Gormley, Campbell & Clute and Tompkins machines; 36 years of age, married; good reference.
5273, Textile World Record, Boston, Mass.

Boss Knitter in underwear mill; worked on glove linings, rubber linings, buffalo cloth, astrachans, eiderdowns, etc.; also circular and flat rib knitting on underwear; familiar with the Campbell & Clute, Tompkins, Bros. circular, Crams, Tiffany & Sons, Chas. Cooper flat rib machines; 45 years of age, widower; will not go West or South; good reference.
5255, Textile World Record, Boston, Mass.

DYERS

Overseer of Dyeing in woolen mill or asst. in large mill; worked on ladies' dress goods, worsteds, men's suitings, woolens and worsteds, cotton yarns, raw wool, worsted yarns, flannels and serges; familiar with the Klauder-Weldon machines; 25 years of age; will not go West, South or Canada; good reference.
5421, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; worked on woolen and worsted goods, in raw stock, yarn or piece goods, also cotton and cotton and wool mixes; accustomed to bleaching either line or peroxide and indigo dyeing; 47 years of age, married; good reference.
5428, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on raw stocks, wool, cotton, shoddies, etc., piece dyeing, wool, worsteds, unions, etc.; has had a number of years' experience; good reference.
5431, Textile World Record, Boston, Mass.

Boss Dyer or superintendent position on cotton, all classes of work; might accept position of traveling salesman for color and chemicals; has worked on cotton yarns, warps, raw stock, piece goods, mercerized, color mixes for printing, bleaching, dyeing and finishing of piece goods generally; familiar with all classes of machinery, including Klauder-Weldon, Delahanty, Platt and others; 43 years of age, married; will not go South; good reference.
5406, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; worked on gent's and ladies' worsteds (fancy), unions, kerseys, fancy overcoatings and suitings, broadcloths, ladies' cloakings, steamer rugs, covert cloths and chinchillas; familiar with the principal dyeing machines used in dye houses; 28 years of age; will not go West, South or Canada; good reference.
5405, Textile World Record, Boston, Mass.

COTTON CARDERS

Overseer of Carding in cotton mill, or good second hand position; has worked on all kinds of cottons, Sea Island, Egyptian and American; familiar with the American and English makes of machines; 33 years of age; good reference.
5425, Textile World Record, Boston, Mass.

Overseer of Cotton Carding or superintendent of plain mill; worked on prints, sheetings, shirtings and ginghams; familiar with all makes of carding and spinning machinery; also a textile graduate; 49 years of age; good reference.
5181, Textile World Record, Boston, Mass.

Boss Carder or general second hand in cotton mill; worked on prints, sheetings, shirtings, jeans, drills, seersuckers, crash, flannels, towels, blankets, etc.; familiar with most all kinds of machinery; 27 years of age, married; good reference; will not go South or Canada.
5026, Textile World Record, Boston, Mass.

Boss Carder or supt. small cotton mill; worked on all colored and white goods, a wide range to 40s; familiar with all makes of machinery; 47 years of age, married; will not go West or South; good reference.
5241, Textile World Record, Boston, Mass.

Boss Carder or second hand in cotton mill; has worked on all classes of stock and on the following machines: Saco-Pettee, Whitin, Kitson lappers, Woonsocket chain drive, fly frames, and on all Mason's carding machinery; 21 years of age, married; will not go West or South; good reference.
5219, Textile World Record, Boston, Mass.

Boss Carder in a cotton mill or asst. supt.; worked on both coarse and fine (combed) also colored goods; familiar with American and English machines; 35 years of age, married; good reference.
5080, Textile World Record, Boston, Mass.

Third-Hand in cotton card room; worked on roving from 6 to 16 hanks; familiar with Saco-Pettee and Whitin machines; 21 years of age; will only go to Fall River; good reference.
5295, Textile World Record, Boston, Mass.

WOOLEN CARDERS

Overseer of Woolen card room; worked on all wool; wool and shoddy; cotton, wool and shoddy; cotton and shoddy; has carded white silk to 9 run; familiar with the different kinds of machinery; prefers Davis & Furber; has worked on the Bramwell and Apperly feeds, also James Barker's condensers; 50 years of age, married; will not go to Pa., West or South; good reference.
5419, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill or second hand in large mill; worked on woolens, cassimeres, flannels, knit goods, shoddy, billiard cloth, carriage cloth, blankets, suitings, dress goods, covert cloth, etc.; familiar with Davis & Furber, Lombard, Tainter's and Cleveland cards; 45 years of age, married; will not go West, South or to Canada; good reference.
5411, Textile World Record, Boston, Mass.

Overseer of Woolen Carding; worked on men's wear, woolen ladies' dress goods, flannels; blankets, both bed and horse; overcoatings, cadet cloths, woolen yarns, all kinds of mixes, both vegetable and animal; familiar with any kind of ring doffers of American make; thoroughly understands Apperly feeds from first breaker to finisher, also camel back feeds; 32 years of age, married; will not go South; good reference.
5398, Textile World Record, Boston, Mass.

Overseer of woolen carding; worked on all classes of woolen goods made from wool, cotton and shoddy mixed; understands all makes of cards; will accept position anywhere except Canada; 45 years of age, married; American.
5393, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill; worked on broadcloths, flannels, suitings, dress goods, cloakings, carriage cloths and hosiery; familiar with all kinds of woolen cards; 34 years of age, married; will not go to N. J., West, South or Canada; good reference.
3355, Textile World Record, Boston, Mass.

MISCELLANEOUS

Machinist in knitting mill; worked on all kinds of sweaters, jackets, fashioned underwear, skirts, and all goods made on flat latch needle machinery; familiar with all American and German circular and flat latch needle machines; hand, automatic, power, etc., loopers, button sewing, button hole, Union Special, Singer, Wheeler & Wilson, seamers, etc.; 40 years of age; good reference.
5418, Textile World Record, Boston, Mass.

Traveling Salesman, asst. supt. or supt. of small knitting mill; has worked on men's, women's and children's ribbed underwear, sweaters, novelties, scarfs, mufflers, ties, etc.; experienced on cotton, wool, lisle, mercerized, silk and artificial silk; has had some experience as salesman in advertising and specialties; familiar with all makes of knitting and finishing machinery; 26 years of age; good reference.
5413, Textile World Record, Boston, Mass.

Loom Fixer in woolen mill; has worked on all kinds of goods; familiar with the Knowles looms; will only go to Mass., R. I. and Conn.; 25 years of age, married; good reference.
5409, Textile World Record, Boston, Mass.

Master Mechanic; worked on woolen, worsted and cotton goods; familiar with all kinds of machinery; 39 years of age; will not go South; good reference.
5408, Textile World Record, Boston, Mass.

Overseer of Cloth Room or overseer small weave room in cotton mill; worked on plain sheetings and twills; familiar with the Woonsocket trimming machines, Curtis & Marble shears and other makes of machinery; 45 years of age, married; will not go West, South or Canada; good reference.
5415, Textile World Record, Boston, Mass.

Second Hand in finishing department in woolen mill or boss job in small mill; worked on meltons, mohairs, kerseys, broadcloths and some worsteds; familiar with all kinds of machinery in the finishing department; 30 years of age; good reference.
5262, Textile World Record, Boston, Mass.

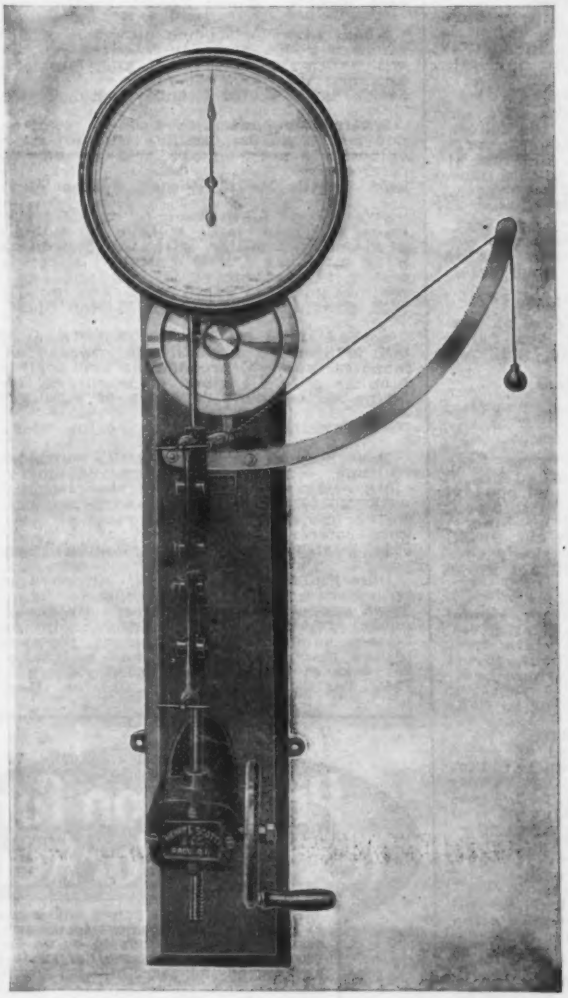
Boss Spinner in woolen mill; worked on men's suitings, cassimeres, kerseys, cheviots, carriage cloth, billiard cloth and other classes; familiar with the English & Bridesburg mules, Davis & Furber mules and jacks; 47 years of age, married; good reference.
5256, Textile World Record, Boston, Mass.

Boss Finisher in woolen mill; worked on linings, both cotton and worsted, cashmere, flannels, wool dress goods, mohair and alpaca linings and dress goods; familiar with singeing, crabbing, tenter frames, cans, padding machinery, plates, dampers, fulling machines, scouring and hydraulic presses; 30 years of age, married; good reference.
6265, Textile World Record, Boston, Mass.

Promotion for Textile Workers

The most practical, surest, and quickest way in the world for ambitious textile workers to secure promotion is offered by an institution through whose assistance thousands of men have already advanced to better positions and larger salaries. They have done this in their own homes, in their spare time, and at an insignificant cost. We will cheerfully explain, free of charge, how we can adapt our plan to **YOUR** personal needs and income if you will write us today, stating the position you would like to secure.
INTERNATIONAL CORRESPONDENCE SCHOOLS, Box 832, Scranton, Pa.

An American Cloth Tester for American Standards



Hand Cloth Tester

Dead Weight Principle

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Ball Bearing

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Quick and Easy Operation

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Flat Gripping Surfaces

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No Need to Cut Samples or Count Picks

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Furnished with any Width of Jaws

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Hand or Power Drive

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Shipped on Approval

Manufactured by

Henry L. Scott & Co.

227 Eddy St.

Providence, - R. I.

MILL NEWS

Pennsylvania, Allentown. Pickup & Kean, Inc., dyers of cotton yarns in the skein and mercerizers of fine cotton yarns are very busy in both departments of their plant, reporting operating at times until one o'clock in the morning. The mercerizing department will probably be enlarged by the installation of additional machinery within a very short time to enable them to keep up with this branch of the business.

Pennsylvania, Philadelphia. In order to increase their drying department and also give them more room in other portions of their plant, the Hulton Dyeing & Finishing Co. are adding another story to the rear end of their building located at 2712 Jasper Sts. When completed, new dryers will be installed and other improvements made in their equipment, for dyeing woolen and worsted yarns and tops and dyeing and finishing of all kinds of plain and fancy woolen and worsted cloths. The company has also fitted up a department in which they are making a specialty of dyeing artificial silks and ramie.

Pennsylvania, Philadelphia. The Orianna Bleach Works, John F. Davidson, prop., at 2560 N. 3d St., report an increasing business in the bleaching of cotton yarns, tapes, Turkish towels, underwear, etc. A department for the bleaching of cotton hosiery has recently been installed and plenty of work in all departments is reported.

Pennsylvania, Philadelphia. Arrangements are being made by the Ebony Dye Works to start up the plant formerly operated by the Hall Hosiery Co. at Front St. and Lehigh Ave. The new plant will have capacity of 2,000 pounds per day for dyeing and finishing silk and cotton hosiery.

Pennsylvania, Reading. The Neversink Dye Works, of which C. Scott Althouse is the president and superintendent, specialists in dyeing, printing, extracting, bleaching and finishing cotton and silk hosiery, are very busy. The company is making many additions to its present plant. A new building, 45 by 45 ft., one story, is being erected to accommodate their laboratories. A new construction department for the building of their own machinery has been installed and placed in the hands of skilled mechanical engineers. A new 200 h. p. boiler has also been installed. Contract has been let for the installation of a large filter plant for the purpose of insuring pure water for their use.

Rhode Island, Phenix. The Pawtuxet Valley Dyeing Co. will soon commence operations to dye, wind and spool cotton, woolen and worsted yarn and dye piece goods, in an addition to the plant of the Royal Chemical Co. New and modern machinery is being installed, and the plant will be under the supervision of James McDowell of Olneyville.

Rhode Island, Woonsocket. The Rosemont Dyeing Co. will add a complete equipment for the printing of tops by the Vigoureux process, and will have same in operation in about three months.

*South Carolina, Greenville. Although details have not yet been determined, the new plant to be built for the Clayton Linen Mills will have an equipment of probably 7,000 spindles with accompanying equipment, including electric power. As previously reported this plant will manufacture towels, etc. J. E. Sirrine is the architect engineer in charge. It is said that a preliminary plant will be established within 90 days.

*Texas, Galveston. The Phoenix Waste Mfg. Co., incorporated with a capital of $40,000, has formerly taken over the property of the Galveston Waste Mills. It is said that the new concern will give the plant a general overhauling preparatory to the manufacture of goods from cotton waste.

Illinois, Chicago. Fire in the warehouse of the International Harvester Co., makers of binder twine, practically ruined 10,000 bales of hemp stored there.

Kentucky, Franklin. The plant of the Franklin Woolen Co. has been destroyed by fire, with a loss of $50,000. It will be rebuilt as soon as possible, and they are in the market for three sets of 60-inch cards, twenty-four 110-inch, 4 by 4 box looms, and the necessary spinning equipment, dressing frame, spools, bobbins, etc. There is a dye house. They made blankets, linsey and slasher cloth. Hiram Dawson, the superintendent, will superintend the buying, and in addition to the above needs a full equipment of supplies, power transmission machinery, elevator, napping machine, etc.

Massachusetts, Hubbardston. Fire in the storehouse of the Hygienic Blanket Co. did damage placed at $18,000; fully covered by insurance. One hundred and fifty bales of blankets and other products were destroyed.

Massachusetts, Wrentham. The mill of the Glenwood Mfg. Co., J. R. Barber and D. W. Mann, co-partners, has been destroyed by fire. Three pickers, two garnetts and two cards were operated in the making of mattress fillings in shoddy and batts, also cotton, wool and jute waddings.

New Jersey, Hightstown. Fire did $8,000 damage to one of the buildings of the Hightstown Smyrna Rug Co. The loss was fully covered by insurance. It is said that the fire will not interfere with the working of the plant.

New York, Herkimer. Fire which started in the carding room of the Gem Department of the Union Mills caused considerable damage, largely from water. The plant was running on full time, after some months of repair work and alterations.

North Carolina, Graham. Fire so badly damaged the waste house of the Travora Mfg. Co. that it will have to be rebuilt. Considerable raw stock was also damaged. The loss, about $1,500, is covered by insurance.

Pennsylvania, Chester. A fire, reported as starting in the dyeing department of the Thompson Worsted Co., Third and Hingston Sts., is said to have damaged the plant to the extent of $5,000. The plant is equipped with three 60-inch worsted cards and four Noble combs, on which they combed and made tops on commission.

DEAN BROS. STEAM PUMP WORKS

INDIANAPOLIS, IND.

DUPLEX PUMPS, SIMPLE PUMPS
ATLANTIC BOILER FEEDERS
JET AND SURFACE **CONDENSERS** ELECTRIC PUMPS BELTED PUMPS, Etc.

VERTICAL AIR PUMP AND JET CONDENSER

DUPLEX DURABLE PUMP

SIMPLE PUMP

TWIN AIR PUMP AND CONDENSER

In Damp Rooms of Cotton or Woolen Mills the Original

BAY STATE

BRICK and CEMENT COATING

is the best protection. It is not affected by smoke, acids or dampness, and protects concrete, stucco or cement against hair cracking.

Applied overhead it does not chip or flake off and thus prevents damage to delicate machinery.

ON FLOORS

It stands wear and washing. It has been used with great success in the slasher and dry rooms of many of the best known mills.

Address for booklet that tells all about it, mentioning this medium.

WADSWORTH, HOWLAND & CO., Inc.

Paint and Varnish Makers and Lead Corroders

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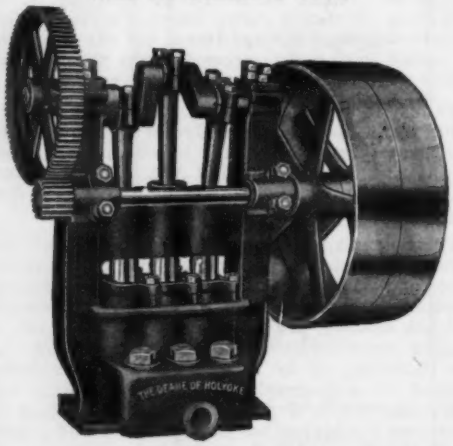
POWER PUMPS

for every service

Write for Bulletin D 7952



The DEANE STEAM PUMP COMPANY

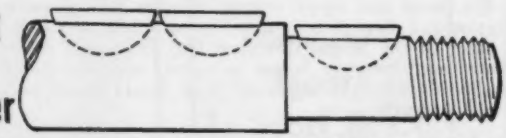
General Office, 115 Broadway, NEW YORK CITY

D17. 2

Key Seating Attachment

FOR

Whiton Gear Cutter



We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

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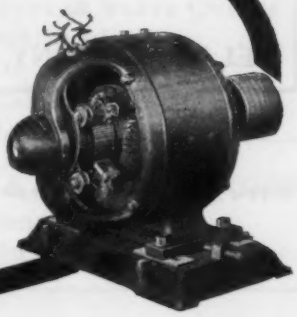
19 Oak Street, New London, Conn.

Watson Motors Save Loom Room Expense

Shafting in the mill means power loss, dirt, and needless expense. Direct motor drive is economical, clean and convenient.

No motor is so well suited to the running of textile machinery as the Watson. Light—compact, well ventilated—does not run hot. A size and type for every need—¼ H. P. to 15 H. P. direct current—¼ H. P. to 40 H. P. for alternating current service.



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"Coronation" Piece End Sewing Machines

on American stand sent on trial most anywhere.

Send for circular.

Finishing Machinery.

ALBERT BIRCH,
Textile Mechanician

Sews any Fabric Thick or Thin, Wet or Dry Without Change. Fine Stitch or Coarse Stitch.

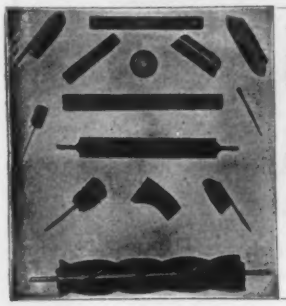
Lowell Crayons

Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers **Lowell, Mass.**

Trade Mark on every box.



S. R. MASON, Treasurer

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Mill and Machine Brushes

Repairing a Specialty.

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It Makes Perfect Seams,

Even when run by Low-Priced Help

No. 1 Portable Hand-Power Railway Sewing Machine

For the finishing processes at your Shears, Gigs, Calendars, Printing Machines, etc., this machine will be found especially desirable, as it is easily moved about, and sews a firm chain-stitch; can be easily removed after the goods are finished.

When a seam is finished, the head is released by a hand nut, each seam must be perfectly straight, can be sewed very near the edge; taking out the seam saves waste; each piece of cloth is stretched alike, the cloth comes out even—these things are not possible by any other method.

These machines are built of different lengths and will sew wet or dry, thick or thin goods.

Send for Catalogue of our Sewing Machines.

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BEST LIGHT FOR MILLS AND FACTORIES
80% SAVING GUARANTEED

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MILL WORK, CARD SCREENS, ROVING CANS, DRYING CANS, BLOW PIPE, SLASHER CYLINDERS REPAIRED

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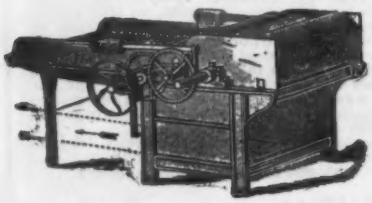
For Millinery, Dress and Upholstery Trimmings and Netting

Steaming outfits for the finishing of knitted neckwear, etc.

The "Simplex" Tables, Comprising **Comparative Yarn Tables,** showing the equivalent sizes of different systems of Numbering Yarn and Different Standards. **Reed Tables. Weight of Yarn per Yard of Cloth. Tables of Knitting Machine Gauges.** Yarn Sizes for Knitting Machines. Sizes for Underwear and Hosiery. **Breaking Strength Table** of American Cotton Warp Yarns. Compiled by Textile World Record. Price 50 cents. LORD & NAGLE CO., Publishers, 144 Congress Street, Boston, Mass.

Geo. W. Gerry & Son, ATHOL, MASS.

MANUFACTURERS OF



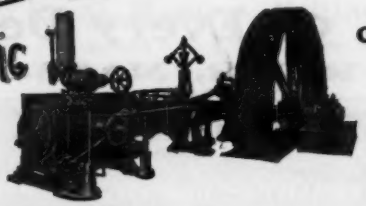
Lumpers,

Wool and Waste Dusters,
Rag Dusters, Nappers.

Improved Cloth Measuring Machines.

Lumper and Duster Cylinders Refilled and Repaired.

THE IMPROVED FISHKILL CORLISS ENGINE
BUILT BY THE FISHKILL LANDING MACHINE CO.
FISHKILL ON HUDSON N.Y.



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where high economy and
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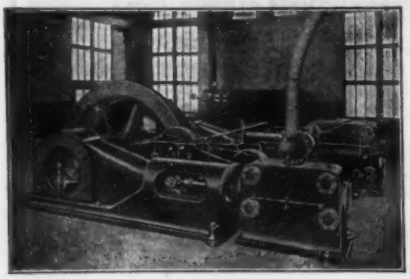
Cylinders & Valve Chests rebored in place.

General engine repairs.



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Heavy Duty Type
NOTED FOR
RELIABLE SERVICE,
LOW STEAM CONSUMPTION,
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SPEEDS HIGHER THAN OTHER CORLISS TYPES.
Designed and built by
PROVIDENCE ENGINEERING WORKS
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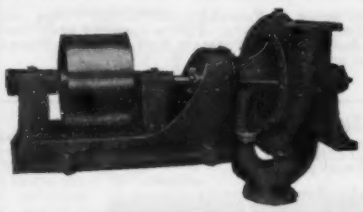
FOSTER SUPERHEATERS
Installed in any type of boiler without change in setting. Uniform superheat guaranteed.
Power Specialty Company,
BOSTON: 50 Congress Street NEW YORK: 111 Broadway.



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We build them in accordance with the most advanced practice for all requirements. Consult with us on any pumping proposition.
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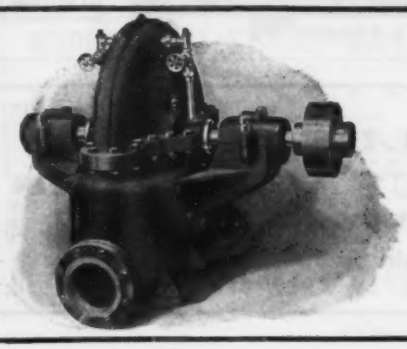
New York Office, 90 West St., Edmund S. Gibson, Manager.
Catalogue T. R. now ready.



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THE GOULDS MFG. CO.
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Made of paper and wood,
Needs no covers,
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FLAT STEEL HEDDLES AND FRAMES,

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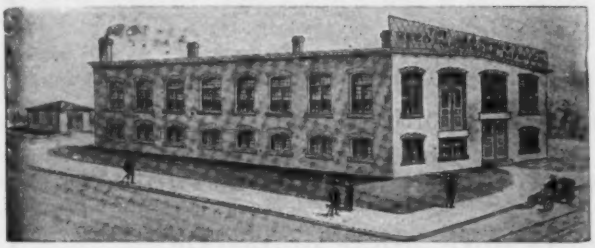
SPECIALTY: The **N. W. O. or Never Wear Out** Doup Heddle.

See the Loom Running at our Factory.



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Warping Combs, Leno, Leice and Hook Reeds. Metal Reeds for Weaving Silk, also Tape and Ribbon Reeds. Tempered Steel Reeds.

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1,200,000 pairs now in use

Best Saddle for Top Rolls of Spinning Frames

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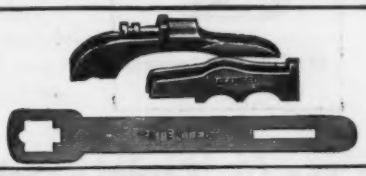
Manufacturers of all kinds of Saddles, Stirrups and Levers



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How much is it worth to you to have your knit goods Bleach Faster, Come Out Softer, More Lofty and Retain Their Whiteness?

This is just what they do if

Wyandotte Textile Soda

is used in the bleach.

All these advantages, from using Wyandotte Textile Soda, will cost no more than less advantageous results with other materials.

Further information and full directions gladly given. Also ask us about Wyandotte Concentrated Ash for kier boiling.

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In every package

Order from Your Supply House.

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich., U. S. A.

This Soda has been awarded the highest prize wherever exhibited.

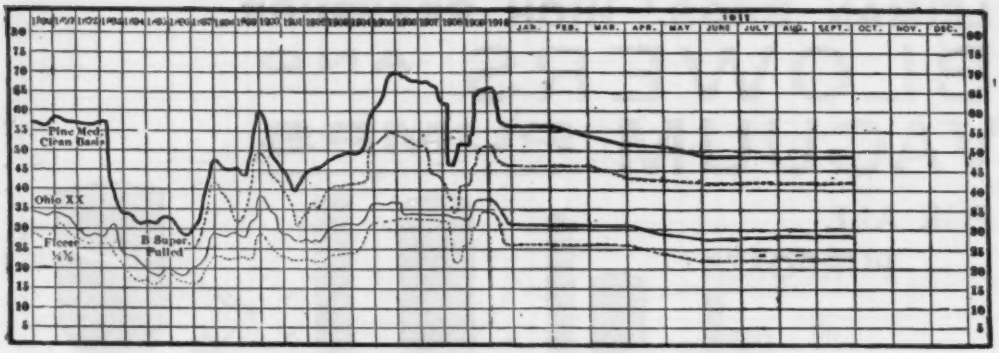


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

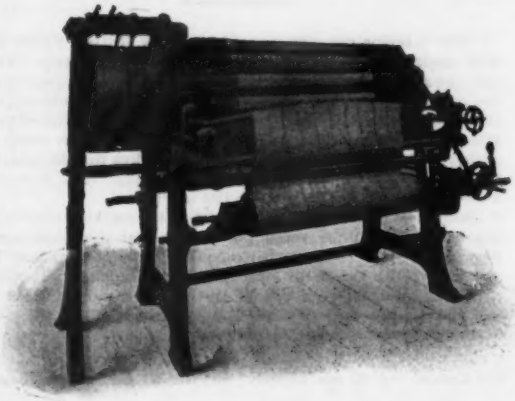
The mills are buying wool only to supply immediate wants. As a result sales have been small, except in the case of a few large mills which have made fair sized purchases of territory wool since our last report. Prices, although not quotably lower, are irregular, some holders finding it advisable to sell at slight concessions. The weakness of foreign wool markets has had its effect in this country, both dealers and manufacturers showing a greater unwillingness to speculate on the future. This slight weakening abroad and the certainty that the revision of the tariff on wool will continue to be a political issue, with both parties favoring some kind of a revision, are the controlling factors in the wool trade. The goods market continues to lag and many manufacturers are finding it impossible to keep their machinery in operation.

MILL NEWS

Massachusetts, Hudson. Ludvig Broderick is reported as installing machinery in the Brigham Bldg. on Washington St. for the making of cotton waste into filling for mattresses. Though but a few hands will be employed at the start, it is expected that the force will be considerably larger by the first of the year.

Massachusetts, North Dighton. A brick addition, 100 by 60 feet, is being built to the plant of the Mt. Hope Finishing Co., bleachers, mercerizers, dyers and finishers of cotton piece goods. It is said that the company contemplates a still further addition in the spring, and for this purpose they are leaving one side of the new section open to permit enlargement.

New Jersey, Wharton. The American Flax Fiber Co. at this place, which was organized some time ago to manufacture flax and linen yarns by a special patented process, is shut down and it is understood that the business is to be wound up.



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the BEST BREAKER on the market, three times the production of any other breaker. Already over two hundred machines in successful use.

A. W. BUHLMANN
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LEIMAN BROS.' HIGH PRESSURE BLOWERS AND VACUUM PUMPS

FOR ALL PURPOSES

for use with Textile and other Automatic Machinery, with Gas and Oil Appliances, Sand Blasts, Gas Producer Plants, etc.

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EIGHT SIZES

POWERFUL NOISELESS

TAKE UP THEIR OWN WEAR

No Delicate Parts

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VACUUM CLEANING

The interior construction of LEIMAN BROS.' BLOWERS is so arranged that the wings take up their own wear. They are always in perfect contact with the cylinder however old the machine may be. This results in the highest efficiency, and they are the only blowers that will maintain this efficiency even after long continual use. The curved form of the wing, together with the small size of the piston makes the air chamber much larger, and makes the capacity greater than any other blower of the same size now on the market.

Many concerns are still using the old style blowers, which are not alone cumbersome and noisy, but the high speed necessary to get results requires considerable power; they are also a constant source of annoyance and expense. In many cases our small blowers will do all this work most efficiently, and the money thus expended is soon made up in the great saving of power, time and trouble.

Get Catalog No. 56 for blowers; or, No. 57 for vacuum pumps

Leiman Bros. 62 AA John St. New York

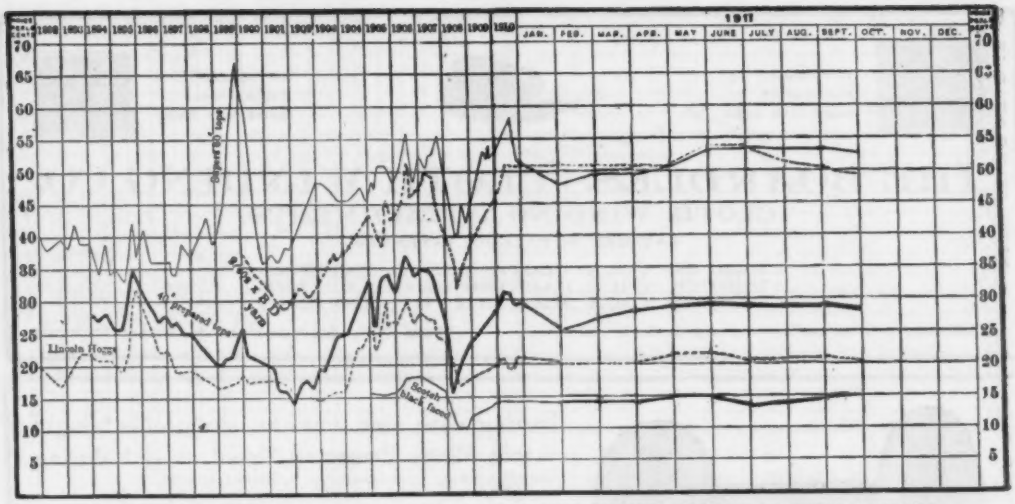


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS AND WORSTED YARN AT BRADFORD, ENGLAND.

THE BRADFORD MARKET

By Our Special Correspondent

Bradford, Eng., Sept. 29, 1911.

Under the prolonged strain of slack business and international complications the market is growing visibly weaker. It has been sighing for three months for some such stimulus as a revived American demand would bring, but time only brings discouragements. Spot supplies of colonial wools are large and transactions are small. The Australian auctions have opened weak, and London sales are at hand. Reports as to the sale of fabrics are poor. Manufacturers, being convinced that trade is going down in volume, expect reductions in price. The present mood is dispirited and the outlook is darker than at any time in these two years.

The fall in tops on the month does not amount to more than half a cent or so per pound, but had business taken the usual course at this season there would have been a rise instead of a fall. Except that contract deliveries are taking place steadily there is nothing good to be said. Merinos will certainly be cheaper in December when the wool bought this month in Sydney begins to arrive. Crossbred supplies are already in excess of requirements. English wools are firm because little is held in this market at present. The wool is in the country and held at prices which neither tempt dealers to buy nor enable them to sell. The season has been a bad one from the point of view of the dealer who since clip time has had no chance to get in.

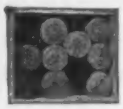
In the noil market more has been doing, but not at prices showing an advance, except possibly in the case of very choice lots of fine noils. The prices for 60s quality are round 28 to 30 cents, and for 40s, 14 to 16 cents.

The Treasury decision applying a duty of 35 cents per pound on silk noils has produced a very awkward situation for dealers. They have contracts running up to the end of March to deliver tussah noils to manufacturers of woolen overcoatings in America, and the decision had put an unforeseen impediment of 100 to 200 per cent. in the way of executing their orders. Meetings of dealers are being held to arrange for concerted action. There is some indignation against a decree which imposes at a few days' notice a duty that amounts in some cases to more than ten times the market price of the material. There are silk noils to be bought at from 3 cents up.

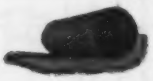
MILL NEWS

*Florida, St. James City. The Sisal Hemp & Development Co., about which mention was made some time ago, is now getting ready to install this plant. They hope to be ready to start operations about Jan. 1, 1912, making lath yarn, tarred and untarred and rope, of sisal hemp. About 18 spindles will be put in, also some cleaning machines. Allen Mackintosh is president and treasurer of the company, Geo. Lawrence, vice-president, and A. W. Knowles, general manager and secretary. They will sell product direct.

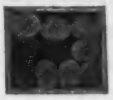
*Missouri, St. Louis. The Continental Converting Co. has been incorporated with a capital stock of $100,000 by Walter H. Carter, O. M. Hill and T. A. Meyers. It is understood that this is the company which is to establish the cotton goods bleaching and finishing plant here in connection with which Mr. Carter's name has been mentioned.



11 PIECES,
NO BOARDS,
SAME SIZE CASE



10 PIECES,
ON BOARDS,
SAME SIZE CASE



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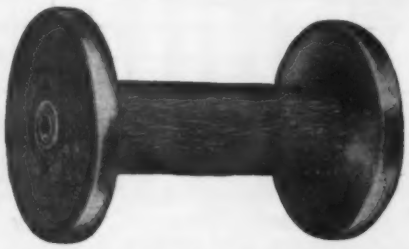
CLOTH WINDING ATTACHMENTS

LATIMER H. BALLOU, PATENTEE

REDUCE YOUR CLOTH BOARD EXPENSE
REDUCE YOUR PACKING CASE EXPENSE
REDUCE YOUR MAKING-UP EXPENSE

If interested write us and have our representative call

BOX 725, LAWRENCE, MASSACHUSETTS



During 1910 nine times as many mills bought this Metal Protected Spool as did during 1909.

Almost every mill ordering a trial lot, has since ordered further quantities of this spool.

Doesn't this prove that it has made good?

Samples and prices upon application.

LESTERSHIRE SPOOL & MFG. CO., Lestershire, New York

United States Fibre Products Company

Henry J. Hughes, Pres. Wm. E. Evans, V. Pres. & Sec.
Wm. H. Culf, Treas.

831 Manton Ave., PROVIDENCE, R. I.

If you want spools that are supreme in quality, positively guaranteed not to warp or sliver, and have three times more tensile strength than wooden spools use

The "EVANS" Patented Interchangeable and Permanent

FIBRE-HEAD SPOOLS

They can be repaired in the mill without the use of tools. The parts are shipped knocked down, thus saving freight charges. The heads cannot be forced off.

This cut shows the interchangeable parts. The assembled spool is shown here.

Write for sample, prices, etc

INDESTRUCTIBLE BEAM HEADS

MOSSBERG
BROAD LOOM BEAM HEADS

These Stamped Steel Beam Heads are made in two types: Solid and split in halves. The split beam heads are so constructed that they may be removed without dismounting the beam from the loom.

They are light in weight, rigid, cannot crack, splinter, warp or break.

Both types of heads are equipped with a special clamping device for firmly fixing them in position on the beam.

SEND FOR CATALOG

THE FRANK MOSSBERG COMPANY, - ATTLEBORO, MASS.

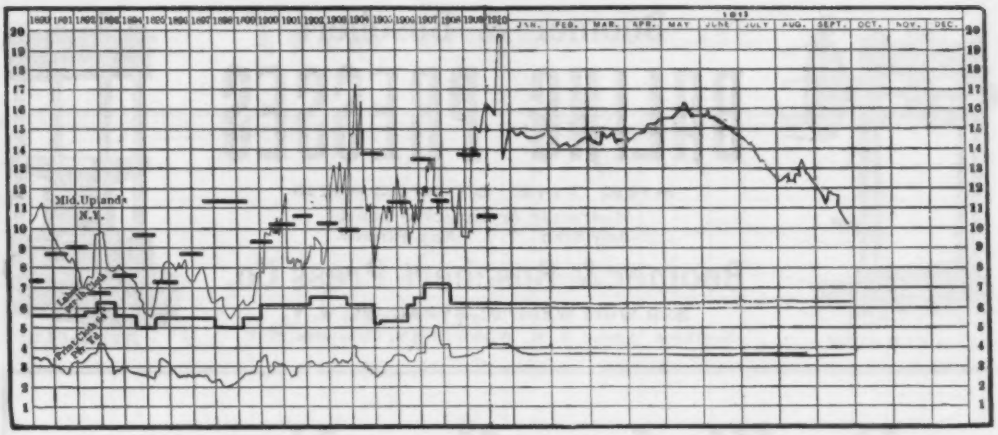


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.
The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

Heavy receipts, high records for quantity ginned, increasing stocks, favorable crop conditions in the South, and a draggy cotton goods market both in this country and abroad have brought about a steady decline in the price of cotton. The movement into sight from Sept. 1 to Sept. 29 is reported as follows by the "Chronicle" for a series of years:

Year.	Bales.
1911, Sept. 29	1,473,461
1910, Sept. 30	1,181,451
1909, Oct. 1	1,499,720
1908, Oct. 3	1,394,469
1907, Oct. 4.	1,073,416
1906, Oct. 5	1,345,147

The increase in the stocks of cotton is shown by the following estimate of the visible supply for a series of years made by the same authority:

Year.	Bales.
1911	2,272,554
1910	1,890,305
1909	2,493,029
1908	2,167,299

Many in the trade believe that the decline has gone farther than conditions warrant, and that a recovery will put prices well above present quotations.

MILL NEWS

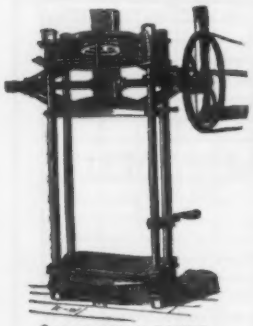
*Connecticut, Norwich. About 60 men are at work on the new building at the plant of the U. S. Finishing Co. This building will be three stories high, of brick and concrete, 130 by 175 feet, and will be used to house the different departments as the work of remodeling goes on. The facilities of the company will be considerably increased when the work is completed.

New Jersey, Dundee Lake. An addition is being made to the Dundee Lake branch of the National Silk Dyeing Co. Piece dyeing and finishing are done at this branch.

*Massachusetts, North Brookfield. Contract has been awarded for a new brick and concrete power house, 40 by 50 ft., for the Oxford Linen Mills, to cost about $2,500. This will house a 240 k. w. dynamo and compounding engine which has just been ordered. The new weave shed has been completed and 24 looms installed, and it is said that the full complement of 250 looms will be in place by Jan. 1.

Pennsylvania, Allentown. The Lehigh Bleachery & Dyeing Co., dyers and bleachers of cotton knit goods and yarns and dyers of cotton skein yarns, are to build an addition to their bleaching department and among other improvements they will put in two new and improved machines for dyeing cotton piece goods, an additional drying machine with a capacity of 3,000 pounds per day and a new baling press, for all of which they are now making inquiries.

MANUFACTURERS OF
WEIMAR BROS. Cotton Mercerized Tapes
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



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Boomer & Boschert

BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size Any Power

Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C

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Profit for the Users.

Everything necessary to produce the best possible results enters into the construction of our

RAWHIDE LOOM PICKERS.

We use selected English cured hides, employ men of skill and experience to work them up, and give every detail in the manufacture of the pickers most careful attention. Good material and good workmanship are bound to produce good results.

G TRADE MARK

GARLAND MFG. CO., Saco, Maine

Formerly Loom Picker Co., Biddeford, Maine

THE SEYDEL MFG. CO.

JERSEY CITY, N. J.

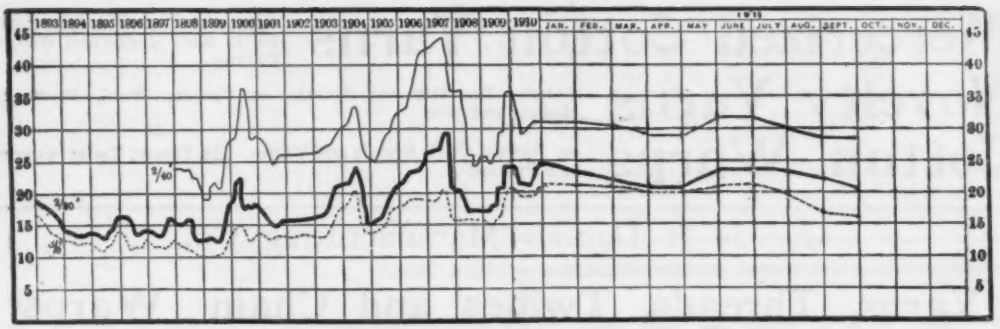
MANUFACTURERS OF

SIZINGS AND FINISHINGS

SOAPS, SOFTENERS AND STARCHES FOR ALL TEXTILES

PHILADELPHIA BOSTON ATLANTA

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The cotton yarn trade has shown considerable improvement during the month of September, both in hard and soft yarns. Stocks in the hands of dealers and manufacturers have been depleted and some staple numbers such as two-ply warps in sizes coarser than 30s, especially 20s two-ply, also 1/16, 2/24 and 2/26 skeins, are exceedingly hard to obtain for immediate delivery. Two-ply 40s in skeins which was very plentiful the early part of September and selling as low as 26 cents is also hard to secure at this time. The surplus has been reduced so that the price has advanced to 27 cents and for some spinnings from 28 to 29 cents.

Deliveries on many contracts for September shipments have been far below specifications. In some cases this has been caused by short selling by commission houses and inability to place contracts. In many instances it has been caused by spinners contracting to deliver certain quantities weekly and being unable to live up to their agreements. Their inability to do this has been caused in some cases by the lack of water during the draught in August last, and in others by the inability to get the organization together in time to get out the yarns.

Because of the supply being inadequate for the demand there is no indication of easier prices for the next four or five weeks. After the spinners begin to get their plants in operation again and their present contracts under way, it seems very apparent that the trade will be warranted in looking for prices on a lower basis. The weaving trade has shown some improvement in all lines and the general feeling among manufacturers is more sanguine than it has been for some months back.

Eastern Cops.

6s	19¼
8s	19¾
10s	20¼
14s	21¼
16s	21¾
18s	22¼
20s	22¾
22s	23¼
24s	23¾
26s	24¼
30s	25
34s	26
36s	27
40s	28

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	21
14s	21½
18s	22
20s	23
24s	24
26s	25
30s	26
36s	29
40s	32
45s	36
50s	40
55s	45
60s	49

Eastern Two-Ply Warps, Carded Peeler

2/30s	26
2/36s	29
2/40s	32
2/45s	36
2/50s	40
2/60s	49

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

Greene & Daniels Manufacturing Co.,

Combed, Carded and Gassed

Yarns, Threads, Twines and Chain Warps

Dye Sulphur Blacks Direct in Cops, Cones or Tubes.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

COTTON WARPS

4s to 60s.

HOUSATONIC, MASS.

C. MOORE & CO.,

Manufacturers of

TWINES, THREADS AND YARNS

Jacquard Harness Twines of all kinds on hand and made to order.

S. W. Cor. Fifth and Market Sts., Phila.

JOHN F. STREET & CO.

Cotton Yarns

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

GRANT YARN CO.

FITCHBURG, MASS.

Combed and Carded Cotton.

YARNS 40's and above

and **WARPS**

JAMES E. MITCHELL CO., COMMISSION MERCHANTS

Cotton Yarns

122-124 Chestnut Street, PHILADELPHIA, PA.
Brown Building, 185 Summer Street, BOSTON, MASS.
28 South Tryon Street, CHARLOTTE, N. C.

LUDWIG LITTAUER

YARNS

Tram, THROWN SILK, Organzine.
ARTIFICIAL OR WOOD SILK.

Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.

Best Quality Harness Twine

109 GREENE STREET, NEW YORK
Silk Throwing Mills BOONVILLE and YONKERS, N. Y.

YARNS

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English Calender Roll Papers

For Embossing and Other Calenders.

Chas. A. Johnson & Co.

Sole Agents for America

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SKEIN DYEING AND MERCERIZING

METHODS THAT ELIMINATE COMPLAINTS

FAST BLACK HOSIERY DYEING

DRAGON DYE WORKS, PHILADELPHIA, PA.

THE PHILADELPHIA MARKET

7s and coarser	18½
8s and 9s	18½
10s	18½
12s	19
14s	19½
16s	20
18s	20½
20s	21
22s	21½
24s	22
26s	22½
30s	23½
40s	29
50s	35

Southern high grade mule yarns:—

Cones

10s	21
12s	21½
14s	22
16s	22½
18s	23
20s and 22s	23½-24
24s	24½

Southern frame yarn, lower grades:—

6s and 8s	18
10s	18½

Eastern cones (high grade quality):—

10s	21½
12s	22
14s	22½
16s	23¼
18s	23¾
20s and 22s	24¼-24¾

Skein yarn (mostly Southern):—

4s and 8s soft	18
10s and 12s	18½-19
14s and 20s	19-20
22s	20½
10/2	19
16/2	19½
20/2	20½
30/2	23
40/2	28
8/2	19
7/6	19

*Massachusetts, Fall River. President Lincoln, of the Lincoln Mfg. Co., in commenting on the increase in the capital stock to $1,250,000, is quoted as saying that this is in pursuance of the original plan to erect a plant of 126,000 spindles. The mill is now equipped for the manufacture of very fine goods, but an equipment to produce medium fine goods is desired, and the increase is recommended with this in view. On account of the low cost of construction and equipment, the present is considered a good time to carry out the original plan of enlargement.

Massachusetts, Hudson. The Hudson Worsted Co., commission wool combing on 18 cards and 16 combs, is running its mill with day and night shifts.

EDWARD A. SNYDER
COTTON AND MERCERIZED YARNS
Foreign and Domestic
521 MARINER AND MERCHANT BLDG.
308 CHESTNUT STREET - PHILADELPHIA
REPRESENTING
ABERFOYLE MANUFACTURING CO., CHESTER, PA.
HOLLAND & WEBB, Ltd., NOTTINGHAM, ENGLAND

TESTING MACHINES
¶ The kind you ought to have.
¶ A machine for every purpose.
¶ Write for catalog.
EUGENE SZEPESI
TEXTILE ENGINEER
141 Milk St., - Boston, Mass.
Sole Agent in the United States for F. R. Poller, Leipzig, Germany. Maker of testing machines since 1708.

COTTON
Honestly Made and Sold at an Honest Price
The Modoc Company, Inc.
FERNWOOD, PA.
The Modoc Indian Guarantees the Quality
SIZINGS

The Merwin Paper Company
Hartford, Conn.
Press Papers and Fender Boards
Correspondence Solicited
Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS

Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted

JENCKES SPINNING COMPANY

PAWTUCKET, RHODE ISLAND

COTTON YARNS

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS.
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

William Whitman & Co.,

Commission Merchants

COTTON AND WORSTED YARNS

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CHICAGO. BALTIMORE. ST. LOUIS. CHARLOTTE.

INDUSTRIAL MILLS CO.

Jusper and Huntingdon Sts., - Phila., Pa.
Manufacturers of
NARROW FABRICS
Special attention paid to Plain and Fancy
SPOOL TAPES, STAY BINDINGS AND BRAIDS
Send for samples of our extra quality
ROYAL CRESCENT TAPES
in all numbers 17 to 35

Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

EDWARD S. HYDE,

226 CHESTNUT STREET,

Philadelphia, Pa.

Fred Sternberg & Co.

530 BROADWAY, NEW YORK

MERCERIZED
GLAZED
GASSED } COTTON YARNS

Century Cotton Mills

Manufacturers of

Hosiery Yarns

Nos. 10s to 30s Sell Direct

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Office and Factory: WAYNE AVE. and BRISTOL STS.
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LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin St., NEW YORK
Flax, Hemp and Jute Line and Tow Yarns, also
TURKEY RED YARNS
For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines,
For Cotton, Silk, Woolen and Carpet Manufacturers

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Cotton Yarns, Cotton Cloth, Silesia, Sateens,

For the Underwear Trade.

Niagara Thread Co.

120-122-124 So. American St.
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Manufacturers of
Sewing Threads and Mercerized Cotton
We manufacture a special thread for the Underwear trade.

CATLIN & COMPANY

NEW YORK, 345-7 Broadway CHICAGO, 719 Medinah Bldg.
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COTTON YARNS

SOLE AGENTS:
Lawton Spinning Company, Hamilton Manufacturing Company, Tremont and Suffolk Mills,
and others furnishing full range of all numbers.

LINEN YARN MARKET

There have been no new developments in the linen yarn trade. Spinners agreed upon a schedule for decreasing their time 15 per cent., which went into effect October 1st, to continue for four months. This will have a tendency to relieve the market. Manufacturers are appearing more frequently in the market and some fair contracts have been placed with prices remaining the same and no indication of a change for some time to come.

Linen Knitting Yarns

("A" Quality)

35s Lea on cones	90-95
50s Lea on cones	1.00
60s Lea on cones	1.00-1.05
80s Lea on cones	1.00-1.10
90s Lea on cones	1.15-1.20
100s Lea on cones	1.30-1.35
110s Lea on cones	1.50
120s Lea on cones	1.75

MILL NEWS

Connecticut, Danbury. The Tweedy Silk Mills, manufacturing hat bands and braids, are now controlled by the Tweedy Silk Mills, Inc. This new company has a capitalization of $500,000. A. E. Tweedy is president and E. T. Hoyt, treasurer. Product of this plant is sold direct.

*Connecticut, South Manchester. Some machines have been started in the new dressing mill of Cheney Bros., and the new dressing machinery will soon be installed. The electrical equipment for motive power is already in place.

ROBERT MARSLAND & Co. LTD.
ESTABLISHED 1810
Fine Cotton Spinners & Doublers
MANCHESTER.
MERCERIZED YARNS
For Hosiery and Underwear
Fine Counts a Specialty
Net Weight Finest Qualities
T. J. PORTER & SONS Selling Agents 119 So. 4th St., Phila., Pa.

LINDSAY THOMPSON & CO., Ltd.
FLAX SPINNERS
Belfast, - - - Ireland
LINEN KNITTING YARNS
Net Weight Finest Qualities
T. J. PORTER & SONS Selling Agents 119 So. 4th St., Phila., Pa.

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The only complete work on the subject.
A handsome volume, bound in dark green cloth, gold lettering; over 300 pages; 256 illustrations and 3 colored plates.
Price $3.00, Carriage Prepaid
A reliable book on carpet and rug manufacture that will strongly appeal to the manufacturer and designer. It is written in an easy style, combining text and illustrations in a manner that gives the perfect technical book.
The chapters are: Designing, Color, Brussels Carpets, Wilton Carpets, Tapestry Carpets, Axminister Carpets, Chenille Axminister Carpets, Kidderminster and Scotch or Ingrain Carpets.
LORD & NAGLE CO., Publishers, Boston, Mass.

PURE RAMIE
YARNS FOR ALL PURPOSES
J. SPENCER TURNER CO., 86 Worth St., New York

TEXTILE MANUFACTURERS ! ! ! ASK ABOUT OUR NEW
HYDRAULIC TESTING MACHINE
For testing the strength of Cloth, Paper, or any material you wish to know the strength and elasticity of.
We also manufacture WARPERS and BEAMERS for Ribbons, Tapes and All Narrow Goods.
C. H. KNAPP, Wait and Rye Streets, PATERSON, N. J.

F. C. BARTON
65 Worth Street, New York
MANUFACTURERS OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

Pocasset Worsted Company,

Worsted Yarns.

OFFICE
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H. HODGSON, Pres. & Treas. FRED HODGSON, Gen. Mgr.

QUEENSBURY MILLS

Mohair, Lustre and Worsted Yarns

—Single and Two Ply—

Grey—Colors on Mixtures Worcester, Mass.

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

William B. Charles,

Amsterdam, N. Y., U. S. A.

Cotton and Wool Wastes

COTTON YARNS

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

Established 1844.

BENJ. BUCKLEY'S SON,

(WM. J. BUCKLEY) *Gun Mill, Paterson, N. J.*

Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.

Roving Spindles and Flyers a Specialty. Light Forgings.

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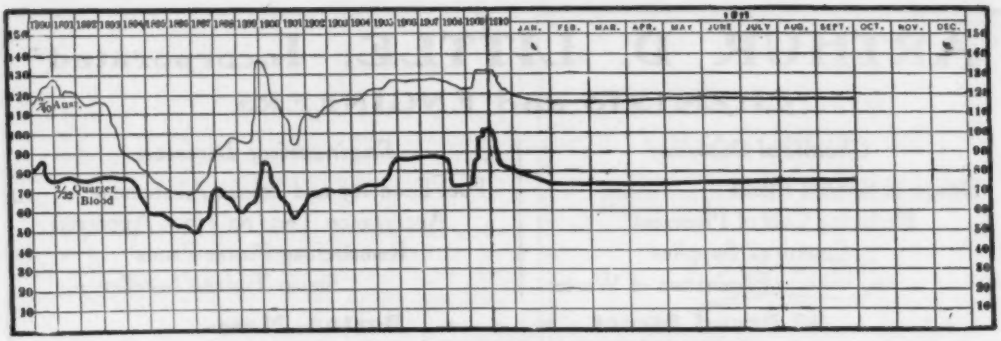

GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WORSTED YARN MARKET

Worsted spinners report that there is a much better demand for yarns from all quarters of the country, both from the knitting as well as the weaving trades, and quite a number of spinners are well booked up on contracts. One feature of present conditions is that there does not seem to be any cutting in prices to get business. As a result prices remain firm at present quotations, except where spinners are asking at least one cent more a pound for their yarns. It is possible that yarns may be dearer before the end of October. Inquiries are continuing and business is being taken on 2/32s high 1/4s, 2/36s 3/8 blood and 2/40 half bloods, in quantities ranging from sample lots of 500 to 1,000 pounds. Buyers are not anxious to place large orders, but are taking yarn as their needs demand and to cover present requirements.

Knitters are very busy and spinners on this class of yarns report considerable business for 2/16s to 2/24s, principally in 1/4 blood for medium grades of sweaters, with prices around 85 cents for 16s and 87 1/2 for 24s in colors and 7 1/2 cents less in the grease.

Men's wear manufacturers report that it is rather too early to anticipate what will be done for the spring season, but all indications point to a fair business in neat, small styles, preferably in stripe effects. The predominating colors appear to be navy blue and tans in piece dyes with a fair demand for kingfisher blue mixes, which some of the trade call "Coronation" colors. For these fabrics the weavers are asking for yarns such as 2/40s half bloods with a good many mills using 2/32s high 1/4s, ranging in price from 92 1/2 cents to $1.10 for 40s and 32s from 80 cents up.

The dress goods trade which is now showing spring styles report that while they are not selling in large quantities, business with them is fair and most of the yarn for which they are placing orders is for 2/40s, for which they are paying from 92 1/2 cents to $1.10 per pound.

BRADFORD SPUN YARN

2/16 Ingrain (black)	47
2/16 Ingrain (light grey)	49
2/16 Ingrain (white)	50
2/12 to 2/16 low common	63
2/12 to 2/20 low common	67½
2/20 to 2/25 1/4 blood	70-73
2/26 to 2/28 1/4 blood	73-74
2/32 1/4 blood	72½-75
2/20 3/8 blood	77½
2/26 3/8 blood	80
2/30 3/8 blood	82½
2/32 3/8 blood	82½
2/36 3/8 blood	82½-85
2/40 1/2 blood	95-1.00
2/40 delaine	1.02½-1.05
2/50 delaine	1.10-1.12
2/40 Australian	1.20
2/50 Australian	1.27½
2/60 Australian	1.40-1.45
2/24 luster	—
2/28 luster	95
2/30 and 3/32 luster	95-97½
2/36 luster	1.10-1.12½
1/24 worsted and 80s single cotton for raincloths	1.05-1.10
1/24 worsted and 120 single cotton for raincloths	1.20-1.25

FRENCH SPUN YARN

1/20 1/4 blood	72½-77½
1/20 high 1/4	81
1/20 3/8	80-82½
1/20 high 3/8	85
1/20 1/2 blood	87½
1/30 3/8 blood	87-90
1/30 1/2 blood	90-94
1/40 1/2 blood	92½-96
1/50 delaine	1.17½-1.20
1/40 Australian	1.25-1.27
1/50 Australian	1.27½-1.30
1/60 Australian	1.35-1.40
1/70 Australian	1.40-1.45

WOOLEN AND MERINO YARNS

Spinners of woolen and merino yarns are busy on yarns for the sweater trade. Knitters are buying 2/20 cut in from 500 to 5,000 pound lots for immediate shipment. On account of the uncertainty of existing conditions and the general

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opinion that prices will have to be raised to meet the demand for goods, spinners will not take contracts for more than three or four months ahead. While 2/20 cut is the count for which the demand is largest there are still some inquiries for 2/23 and 2/25 cut. It is conceded that the former count is the one on which most of the business will be done for the present season.

On account of the large demand for 2/20 cut grey mixed, all wool greys and colored all wool yarns, prices have been advanced 2 1/2 cents per pound. It is expected that a further increase of 2 1/2 cents will be made as the season grows older.

The knitting trade is very busy, and in some instances sweater manufacturers are unable to take orders because they cannot name dates of deliveries.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	55
2/20 Light Grey Mixed	90%	10%	57½
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			62½-65
2/20 Bleached	80%	20%	68
2/20 Bleached	90%	10%	70
2/20 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

The business continues dull with orders from manufacturers given to cover immediate requirements only. The export trade has also dropped off, although there is a general feeling that this slackening is only temporary and that foreign orders will be resumed in a short time. Cotton waste is lower in sympathy with the market for raw cotton. Wool waste is in small supply with prices firm for the better grades of stock. We quote as follows:

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	23-40
White knit, No. 2	34-38
Light yarn, extra fine	30-34
New pure indigo blue	25-28½

Merino

Fine light, all wool	28-31
Medium light, all wool	15½-19
Fine black, all wool	28-29
Fine dark, all wool, best grade	19-22
Medium dark, all wool, No. 2	14-15
Red knit stock, strictly all wool	19
Red flannel, all wool	20-24
Dark blue for hosiery, strictly all wool, No. 1	20
Dark blue for hosiery, not all wool, No. 2	14-18

WOOLEN RAGS

Fine merchant tailors	5-7
Choice light colors	12-14
Browns	10-14½
Blacks	4
Blues	10-11
Fine dark	8-12½
Medium dark	4-7

Worsteds

Blue	11-13½
Black	13-16

Serges

Black	11
Blue	12

Flannels

New scarlet	20-22
New blue	13
Cloakings	4-5

SOFTS AND KNIT STOCK

Soft woolens, best	5-6
Old white flannels	11-14
Old red flannels	10-12
Old blue flannels	3-5
Old plaids	5-10
White stockings	21-24
Clear hoods	8½-10
White hood stock	20-23

New Jersey, Bogota. It is reported that Ernest Reithmann is planning to start a small embroidery factory on Elm Ave., to be operated by electricity.

MILL NEWS

Massachusetts, Clinton. W. A. Cogswell, treasurer of the Belle Vue Mills, is installing additional looms in the Allen St. mill owned by the business men of Clinton and of which he has a lease, and will increase the number of hands employed. The mill has been run at intervals on orders which could not be filled at the company's mill on Sterling St.

New Jersey, Paterson. Hugo Huettig Co., makers of full fashioned silk hosiery, located in the Hall mill, have leased the floor in the same mill formerly occupied by the Haines Broad Silk Mfg. Co.

*New Jersey, Paterson. The new addition to the mill of S. Oppenheim & Levy, which will about double the size of their plant, will be ready for occupancy in about a month. The broad silk, chiffon and lace departments will all make some increase.

New Jersey, Paterson. The Scandia Silk Co., tubular ties, expect to add a number of ribbon looms soon.

*New Jersey, Paterson. The mill of the Kane & Wilkinson Silk Co. is closed and the machinery will soon be sold. Anton Schmid is trustee.

New Jersey, Rutherford. The Georgia Mills, Inc., at East Rutherford, making silk and cotton plushes, have been shut down. It is not known when the plant, equipped with dyeing and finishing department, will be started up again.

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will effectively protect it from rot, dry rot and decay. It will double its life *at least*—and this means both underground and above ground.

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Manufacturers, Importers and Exporters of all Materials used in

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Sizing, Tallows, Soluble Grease, Soluble Oils, Gums, Glues, Gum Arabol, Lancashire Size, Waxes, Finishing Pastes, Soaps, Glycerine, Readymade Heavy Size, Sago and Tapioca Flours, Dextrines, China Clay, Soluble Blue, Bone Grease, Magnesium.

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Weighting compounds for colored and white warps.

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CHENEY SILK YARNS

Your needs along this line will be fully met. Silk yarns to order a specialty. Doubles and singles; trams and organzines. On spools or cones, warped or in the hank.

The following silks have made Cheney Brothers a world-wide name:

Cheney Dress and Lining Silks, Foulards, "Shower-Proof" Foulards, Millinery and Knitting Silks, Satins, Velvets, Plushes, Silk and Velvet Ribbons, Wash and Underwear Ribbons, Cravats, Decorative and Upholstery Goods.

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CHAMPLAIN SPUN SILK YARN

IS a yarn built up to the needs of the users.

If you are a weaver, a knitter or in any branch of textiles where ***Spun Silk*** is used you will find we make a yarn suited to your particular purpose. Furnished in the natural or dyed on cones, cops, tubes, spools, in warps or skeins, or as required.

Champlain Silk Mills

Whitehall, N. Y.

Offices
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Philadelphia, Chicago

Mills
Whitehall, N. Y.
Brooklyn, N. Y.

THE SILK MARKET

Very little change has occurred in the silk market since our last report. At the present time it shows quite a weakness and very little activity. No one seems to be able to give any good reason for this continued dullness in the silk industry and no one can say how long it will continue. The silk manufacturers are not busy at the present writing, but are optimistic as to the future and are still hoping for a good business within a month or so. Some raw silk is being bought, but on only a hand-to-mouth basis. The styles at the present time seem to point to a good season for the ribbon manufacturers, but as yet no great activity has been noted in this line.

In broad silks there is some activity, soft finish light goods having the preference. The European manufacturers are not as yet running full, and in fact business with them is on about the same footing as in this country. In Lyons and in the other silk centers of Europe there is little activity, and indeed at the present time it is problematical how long the dullness will continue. It seems quite certain that the prices of the raw product has reached its level in Japan, and no further drop in prices need be looked for. Some

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5th No Secrecy Regarding Chops.

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Schappe, Spun Silk, Cordonnets for Sewing

In Skeins—on Cops—Spools—Cones—Beams.
In the Gray or Dyed.
Special attention to regularity of sizes.

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silk is being sold in Japan, but the shipments are small.

It is generally conceded that now is the time to buy raw silk, as lower prices will not prevail. This is the concensus of opinion in all quarters. The throwsters are still doing a fair business, and are still doing a great deal of throwing for the cotton and knitting manufacturers. This end of the trade has been, and still is, a great help to the throwsters. Nothing at this writing can be predicted as to how active the silk industry will be this fall, but the optimistic feature seems to be general, and it is to be hoped that all signs will not fail. Below are prices current.

European

Grand Extra Classical Piedmont 12/14	4.25-4.30
Extra Classical Italian 12/14-14/16	3.85-3.90
Classical Italian 13/15-24/26	3.75-3.80
Best No. 1 Italian 13/15-24/26	3.70-3.75

60 days' basis.

Japan

Filature Kansai Extra Extra 13/15	3.85-3.90
Filature Kansai Extra 13/15	3.70-3.72½
Filature Shinshu Extra 13/15	3.67½-3.70
Filature Kansai Best No. 1 Extra 13/15	3.55-3.60
Filature Best No. 1 13/15	3.50-3.55
Filature Kansai No. 1 13/15	3.40-3.45
Filature Shinshu No. 1 13/15	3.37½-3.40
Rereels No. 1 12/16	3.55-3.57½
Rereels No. 1-1½ 12/16	3.45-3.50
Rereels No. 1-1½-2	3.40-3.45
Canton X X A 14/16	3.12½-3.15
Canton X X B 14/16	2.95-3.00
Canton Rereels Selected Nos. 1-2	2.25-2.30
Canton Rereels Ordinary Nos. 1-2	2.65-2.70

6 months' basis.

China

China Steam Filature 1st Grade 13/15	4.10-4.15
China Steam Filature 2d Grade	3.90-3.95
Tussah Best Chops Eight Cocoon	1.55-1.60
Tsattle Blue Dragon	3.15-3.20
Tsattle Kunkee Mars No. 1	2.80-2.95

The demand for spun silk still remains good in all grades, and the spinners are busy. There is no change in prices, which are quoted below:

60/2	3.40
50/2	3.30
40/2	3.20
30/2	3.05
20/2	2.95
10/2	2.85

Castles Ivory White Mill Paint
Will increase the light value in your mill
40%
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Write for samples and prices
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KROUT & FITE MANUFACTURING CO.,
Manufacturers of
Silk, Cotton and Mercerized Narrow Fabrics
SPOOL TAPES A SPECIALTY.
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Chicago Office, 206 So. Market St. Boston Office, 78 Chauncy St.

SILK MILL NEWS

New Jersey, Paterson. The broad silk machinery in the Hall Mill, once known as the Haines Broad Silk Mfg. Co., and until lately run on lease by M. C. Migel & Co., has been sold to Post & Sheldon and Sheldon & Leach. That part purchased by Post & Sheldon is being moved to their mill at Slatington, Pa.

*New York, Binghamton. Work has been started on the erection of a new mill, 235 by 65 feet, for the J. & D. D. Miller Co., recently reported incorporated with capital stock of $100,000 to continue the business of J. & D. D. Miller. It is expected to have the new building, to be equipped with electric power, ready for occupancy about December. Company makes broad silks of all kinds. James Miller is president of the new company and David Miller treasurer. Product will be sold through Strauss & Schlichting.

New York, Brooklyn. Wm. Salmon, who operates one of the largest braiding plants in this country, will add the manufacture of millinery and dress trimmings to his business, and has placed an order with the John Eppler's Machine Works, Philadelphia, for six of their latest improved upright knitting looms.

New York, Brooklyn. Julius Kayser & Co., 220-258 Taffee St., are making an addition to their plant here, and considerable silk throwing machinery will be put in.

*New York, Glens Falls. The Clark Textile Co., Saratoga Springs, will operate 200 sewing machines at the branch plant established here. The company has recently started another plant of 50 sewing machines at Schuylerville, N. Y.

Pennsylvania, Allentown. The Ansonia Silk Co., operating 30 looms on broad silks by electricity, contemplates the addition of ten broad silk looms to their plant.

*Pennsylvania, Hazleton. The addition to the plant of the Duplan Silk Co. is not expected to go any further this fall than the foundations, although the building may be started this season and finished in the spring of 1912.

Pennsylvania, Wilkesbarre. Sheldon & Leach, manufacturers of taffetas, at Paterson, N. J., have leased a building at this place where they will soon remove their mill. They have recently purchased some of the machinery run by the Haines Broad Silk Mfg. Co. in the Hall Mill and will remove same to Wilkesbarre.

Massachusetts, Lowell. The busy season has started at the mills of the Merrimack Woolen Co., and arrangements are being made for an all day and all night schedule, the carding department having already commenced to run all night.

Massachusetts, Needham Heights. The mills of the William Carter Co., underwear manufacturers, are reported to run on full time from now on. The company employs about 400 hands.

Massachusetts, Pittsfield. Jas. & E. H. Wilson, worsteds, cassimeres, overcoatings and cloakings, report a good business which necessitates their running nights. This company operates 28 sets of cards, 6 narrow and 100 broad looms, does its own dyeing and finishing and sells direct.

New Jersey, Paterson. It is said that Schottland & Young, manufacturers of broad silks, will add ten more broad silk looms to their plant in the Hall Mill.

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Also Power Transmission Supplies for General Mill Use.

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Raw Silk Warping a Specialty.

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Cuts Depreciation Costs.

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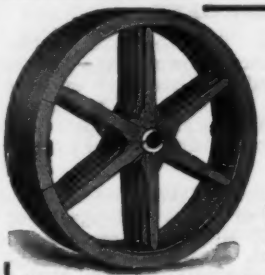

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The Mellor Matchless Method of

Boiler Furnace Equipment

Mellor's "Anti-Smoke" bars are designed for efficiently burning bituminous coal. They eliminate the smoke nuisance, produce more steam and save 15 per cent. fuel.

Mellor's "Climax" bars are efficient steam producers. Consume any grade of anthracite fuel equal to forced draft. Send for Models and particulars.

Mellor Furnace Engineering Co.

608 Chestnut St., Philadelphia, Pa.

ALMOND RIGHT ANGLE TRANSMISSION

Self-Contained
Noiseless
No Gears
Does Not Throw or Spill Oil

TRANSMITS POWER AT RIGHT ANGLES

Its motion is positive and there is no variation in angular velocity. The Friction Loss is from 7 to 10 per cent. which is less than an ordinary countershaft.

T. R. ALMOND MFG. CO.

ASHBURNHAM, MASS.

MILL NEWS

Massachusetts, Pittsfield. It is said that representatives of a plush manufacturing concern of Krefeld, Germany, who have been looking for a factory site in this vicinity, are very favorably impressed with Pittsfield. It is quite probable, though, that no definite action will be taken until the new factory which the company is erecting in Germany is completed.

Massachusetts, Plymouth. The directors of the Plymouth Cordage Co. have recommended for consideration at the annual meeting the increase of the capital stock of the company by the addition of 5,000 shares. The company is capitalized at $2,500,000, and the proposition is to offer the new stock at the ratio of one new share for every five shares now held. The increase is to cover expenditures made in "increasing the company's plant to enable it to meet the ever increasing demand for its products." It is said that the directors have voted to omit the extra cash dividend of $3 this year.

*Massachusttts, Shelburne Falls. The Ashoyton Knitting Co., which started running in March, manufacturing gloves, mufflers, caps, toques and novelties, now operates 10 knitting and 2 sewing machines. The plant is equipped with electricity. Product is sold direct. H. R. Ashworth is superintendent and buyer.

Massachusetts, Thorndike. The mills of the Thorndike Co., operating 38,304 spindles and 871 narrow looms on tickings, stipes, awnings, etc., have gone on a 54 hour a week schedule, running from seven till six and until eleven o'clock on Saturdays.

Massachusetts, Warren. The carding and spinning departments of the Sayles & Jenks Mfg. Co. have started to run nights, and there is work enough in sight to keep the mills busy for some time to come.

Massachusetts, West Millbury. A night shift has been started at the Millbury Mills, makers of worsteds. It is said that this work will be continued nearly all winter.

*Massachusetts, Worcester. The contemplated establishment of a silk mill at this place by a Paterson manufacturer has been abandoned for the present.

Michigan, Grand Rapids. It is reported that changes are contemplated which will double the capacity of the plant of the Swiss-American Knitting Mills, makers of men's, women's and children's underwear in cotton, wool, worsted, silk and merino.

Minnesota, Minneapolis. The Northland Knitting Co., sweaters, toques, shawls, etc., are reported as running night and day on heavy orders. It is stated that business uncertainty has caused buyers to delay placing orders, with the result that they have come in all at once, the same condition prevailing among the first-class knitting concerns throughout the Middle West.

Which is better
An oil that spatters and leaves a stain which *may* wash out
or
An oil, that causes no stain because it doesn't spatter?

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TRADE MARK NON-FLUID OILS REGISTERED IN UNITED STATES PATENT OFFICE

Will reduce stained yarn to the lowest possible percentage. Every particle applied to twister rings stays there and lubricates. Travelers run freer, and last longer. Fewer ends break down, your yarn runs more uniform, you increase and improve production and your expense for lubrication is much lower.

A test at our expense proves it

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Has a record of highest efficiency on timber work in the United States since
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compels your watchman to visit as many danger places in your plant as you wish. You may start with one clock and one station, and then add stations up to 96. No two sets of keys duplicates. This clock

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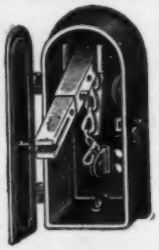

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The Chicago Portable Watchman's Clock

Approved by the National Board of Fire Underwriters and accepted by all Insurance Companies

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Simple, Efficient, Tamper-proof, Durable

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DR. SCHMITZ'S MONOPOLE OIL. U. S. Patent No. 861397.

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Important Improvement in Worsted Spinning.

THE BAMFORD DUST PROOF and SELF-LUBRICATING SPINDLE TUBE

saves oil, prevents clogging with dust and lint, thereby insuring longer life to the tubes, saves labor, maintains uniform speed, and most important of all, makes PERFECT YARN. Refer to largest worsted mills.

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Cash Capital, $3,000,000.

ASSETS January 1, 1911	$30,178,913
LIABILITIES (Including Capital	16,349,300
RESERVE AS A CONFLAGRATION SURPLUS	1,500,000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES	12,329,613
SURPLUS AS REGARDS POLICY-HOLDERS	16,829,613
Losses Paid Since Organization Over	126,000,000

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on acceptable
Protected Plants
at the
Minimum Rate

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OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

Acetic, 100 lbs.	1.94-2.10
Citric, domestic	39
Oxalic	7¼-8
Sulphuric, 66°, 100 lbs.	1.00-1.26
Muriatic, 18°	1.15-1.65
Tartaric crystals	30½-30¾

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	1.87-2.02
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	3¼-5¾
Borax	3½-4½
Copperas	65-80
Cream tartar, crystals	24-25½
Fuller's earth, powdered, ton	22-25
Glauber's salt	75-85
Potash, chlorate, crystals	8½-9½
powdered	11-14
carbonate	3½-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.90
Sal., American	69-85
Vitriol, Blue	4.75-5.00
Acetate of soda	4½-5
Acid, Picric, best crystals	25-28
tannic, commercial	32-40
Albumen, egg	53-75
blood	23-30
Aniline, oil	8-14
salt crystals	14
Alizarine, red	20
Bichromate of potash, American	7½-8½
Bichromate of soda	5¾-6
Bisulphite of soda	75-1.25
Cutch, bales	6-7
Dextrine, imported potato	5¾-7
Divi-divi, ton	34-47

FIRES.

Pennsylvania, Philadelphia. The Freeland Mills, operated by the Freeland Mfg. Co., Freeland Ave. and Walnut Lane, Manayunk, containing 11 sets and 70 looms operated on blankets, flannels and linings, was recently damaged by fire with a loss estimated at $1,000.

Pennsylvania, Pottstown. The Gold Seal Knitting Mills, 58 S. Charlotte St., operating 25 latch needle knitting machines, 3 loopers and 1 welter on men's and women's seamless hosiery, cotton and mercerized, were damaged by fire to the extent of about $3,500. They are reported as having a good supply of orders on hand and have been working overtime. It is said that a building at Adams and King Sts. is being considered as a new location.

*Pennsylvania, Robesonia. At this time it is not known whether the Robesonia Knitting Mills, which were destroyed by fire, will be rebuilt and started up or not. The plant was a total loss, and the adjustment of the insurance has resulted in litigation.

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MERCERIZED YARNS

FOR ALL PURPOSES.

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Successors to R. Greenwood & Bault

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140 Chestnut St., PHILADELPHIA.

THE PEERLESS COMPANY

Willard and Jasper Sts., - Philadelphia

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Fast Colors on Silk for Worsted Manufacturers
Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

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Bleachers and Dyers of COTTON YARNS and STOCKINET

Office with Blodgett & Orswell Co., Manufacturers of Glazed Yarns.

232 Front St., Pawtucket, R. I.

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Dyers and Bleachers of Skein Yarns. Twines and all Narrow Fabrics. Printers' Knotting Cords a specialty, on tubes or balls (our Fast Black will please you).

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Office and Works, 259 Forest St., FALL RIVER, MASS.

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BY J. LEB NICHOLSON.

The author is one of the few who have studied the problems of cost finding and organization in textile mills. The book takes up in detail the different branches which enter into this subject, and presents systems with detailed instructions, diagrams and plates showing the forms, blanks, and records to be used. It is 8 1-2 x 11 inches, substantially bound in 3-4 Morocco. Descriptive folder free. The price is $12.50, which includes express charges.

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Dyers of all kinds of YARNS and HOSIERY

Woolen and Worsted yarns a specialty. Latest improved machinery for dyeing hosiery in Sulphur, Black, Tans and fancy colors. Better work and better service than you get elsewhere.

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in skein, and long and short

CHAIN WARPS

Fast Colors a Specialty.

Daily Capacity 20 TONS.

Fast Colors and Black for Worsted Trade.

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Everything in White Goods.

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Roofed according to the Barrett Specification.
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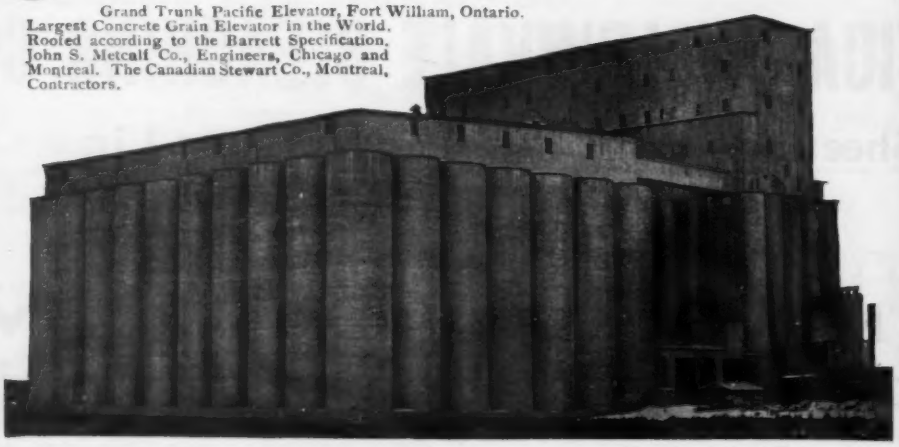

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THE accompanying illustration shows *the largest concrete grain elevator in the world*

It has a capacity of 2,500,000 bushels, and is part of a plant which when completed will be capable of storing one-third the wheat crop of Western Canada. This section cost $1,250,000. Its roof area, 75,000 square feet, is covered with a Barrett Specification Roof.

The reasons for this choice of roofing were:

First — *Low maintenance expense.* As a Barrett Specification Roof never needs painting and will last 20 to 30 years, the maintenance expense may be said to be nothing.

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The foregoing reasons explain the enormous popularity of Barrett Specification Roofs on permanent structures of all kinds.

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TRADE B MARK

TEXTILE MILL STOCKS

SOUTHERN MILLS

Reported by F. C. Abbott & Co., Charlotte, N. C.

	Bid.	Asked.
Abbeville	...	75
Aiken Manufacturing Co.	85	...
American Spinning Co.	...	160
Anderson, pfd.	...	90
Anderson, com.	...	44
Arkwright Mills	...	100
Avondale	125	129
Belton	120	126
Brandon	92½	...
Brogon Cotton Mills (new series)	...	61
Brookside	105	...
Cannon	125	141
Cabarrus	131	140
Chadwick-Hoskins	...	95
Chadwick-Hoskins, pfd.	...	101
Clifton, pfd.	96	100
Clifton, com.	70	...
Cliffside	190	200
Clinton	...	120
Chiquola Cotton Mills	...	...
Columbus Manufacturing Co.	93	101
Darlington	75	83½
Drayton	90	95
Eagle & Phoenix	110	...
Enoree, com.	...	50
Enoree, pfd.	...	101
Erwin, pfd.	101	102
Easley	...	161
Exposition	...	210
Florence	...	126
Gaffney Manufacturing Co.	...	60
Gluck	97½	101
Greenwood	55	...
Glen Lowry, pfd.	...	100
Graniteville, S. C.	140	152
Grendle	...	100
Glenwood	...	150
Highland Park	150	200
Highland Park, pfd.	...	101
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	170
Inman, com.	...	108
Inman, pfd.	...	95
John P. King Manufacturing Co.	77½	79
Kesler	125	140
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	93	99
Lanet	110	...
Langley Mfg. Co.	104	...
Laurens	127	136
Lockhart, S. C.	...	72½
Loray Mills, pfd.	90	94
Loray Mills, com.	10	...
Marlboro Cotton Mills	50	75½
Mills Manufacturing Co.	...	...
Mills Manufacturing Co., pfd.	...	...
Modena	...	90
Mollohon	95	105
Monarch, S. C.	105	110
Newberry	110	...
Norris Mills	121	130
Ninety-Six	130	140
Orr	95	100
Ozark	92	110
Parker Mills, com.	...	26
Parker Mills, pfd.	...	80
Parker Mills, guaranteed	...	101½
Pacolet Manufacturing Co., pfd.	95	100
Pacolet Manufacturing Co.	...	65
Patterson	110	126
Pelzer Manufacturing Co.	154	164
Piedmont Manufacturing Co.	...	167
Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	110	115
Riverside Manufacturing Co.	...	78
Roanoke Mills	155	161
Saxon	114	...
Saxony Spinning Co.	...	110
Spartan	...	125
Toxaway	...	78
Union Buffalo, 2d pfd.	...	12½
Warren Mfg. Co., pfd.	...	107
Warren, com.	...	95
Washington Mills	20	30
Washington Mills, pfd.	100	101
Watts	...	100
Woodside, pfd.	...	97
Woodside	...	90
Williamson	...	126
Ware Shoals	...	76
Whitney	110	120
Wiscasset	103	125
Woodlawn	100	103
Woodruff	...	117½

FALL RIVER MILLS

	Bid.	Asked.	Last Sale.
American Linen Co.	85	...	...
Arkwright Mills	...	85	...
Barnard Mfg. Co.	...	90	...
Bourne Mills	...	100	99
Border City Mfg. Co.	...	130	...
Chace Mills	117	...	120
Cornell Mills	...	200	...
Davol Mills	88	96	...
Davis Mills	105	110	...
Flint Mills	...	94	...
Granite Mills	...	...	134
Hargrave Mills	...	110	...
King Phillip Mills	145	155	...
Laurel Lake Mills	...	162	...
Lincoln Mfg. Co.	...	100	...
Luther Mfg. Co.	...	...	...
Merchants' Mfg. Co.	85	90	...
Mechanics' Mills	95	97	...
Narragansett Mills	...	125	...
Osborn Mills	115	...	...
Parker Mills	...	100	...
Pocasset Mfg. Co.	...	138	...
R. Borden Mfg. Co.	145	155	...
Sagamore Mfg. Co.	145	150	...
Seaconnet Mills	...	66	...
Shove Mills	87	91	...
Stafford Mills	85	90	...
Stevens Mills	102	...	102
Tecumseh Mills	110	113	...
Troy C. & W. Mfy.	...	1500	...
Union Cot'n Mfg. Co.	...	225	...
Wampanoag Mills	90	93	92
Weetamoe Mills	85	90	...

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Reported by Sanford & Kelley

	Bid.	Asked.
Acushnet Mills	...	165
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	110	112½
Booth Mfg. Co., com.	...	100
Booth Mfg. Co., pfd.	...	95
Bristol Mfg. Co.	...	110
Butler Mfg. Co.	135	...
City Mfg. Co.	145	150
Dartmouth Mfg. Co.	...	300
Dartmouth Mfg. Co., pfd.	106	...
Gosnold Mfg. Co., pfd.	98	...
Grinnell Mfg. Co.	...	222½
Holmes Mfg. Co.	...	105
Holmes Mfg. Co., pfd.	...	111
Kilburn	...	132½
Manomet	...	120
Nashawena Mills	...	91
Neild Mfg Co.	...	100
N. B. Cotton Mills Co.	...	...
N. B. Cotton Mills, pfd.	...	95
Nonquitt Spinning Co.	...	106
Page Mill	...	120
Pierce Mill	400	...
Pierce Bros., Ltd.	100	...
Potomska Mills	...	120
Quissett Mills	90	100
Sharp Mfg. Co., com.	...	118
Sharp Mfg. Co., pfd.	...	95
Soule Mills	95	99
Taber Mills	128½	...
Wamsutta Mills	128½	...
Whitman Mills	...	177½

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Furnished by E. S. Wainwright & Co., 60 State St., Boston

	Last Sale.
Amoskeag Mfg. Co., N. H.	375
Androscoggin Mills, Me.	190
Appleton Co., Mass.	175½
Arlington Mills, Mass.	123
Atlantic Cotton Mills, Mass.	50¼
Bates Mfg. Co., Me.	249
Bigelow Carpet Co., Mass.	165
Boott Cotton Mills, Mass.	98⅛
Boston Duck Co., Mass.	1350
Boston Mfg. Co., Mass.	105¼
Cabot Mfg. Co., Me.	110½
Chicopee Mfg. Co., Mass.	120
Continental Mills, Me.	106
Dwight Mfg. Co., Mass.	1175
Edwards Mfg. Co., Me.	99
Essex Co., Mass.	190
Everett Mills, Mass.	150¼
Fisher Mfg. Co., Mass.	120¼
Franklin Co., Me.	151¾
Great Falls Mfg. Co., N. H.	185
Hamilton Mfg. Co., Mass.	82½
Hamilton Woolen Co., Mass.	102
Hill Mfg. Co., Me.	120
Jackson Co., N. H.	985
Lancaster Mills, Mass.	120
Lawrence Mfg. Co., Mass.	175
Lockwood Co., Me.	104
Lowell Bleachery, Mass.	208
Lowell Hosiery, Mass.	40
Lyman Mills, Mass.	130½
Massachusetts Cotton Mills, Ga.	101½
Massachusetts Cotton Mills, Mass.	118
Merrimack Mfg. Co., com., Mass.	583¼
Merrimack Mfg. Co., pfd., Mass.	100⅛
Middlesex Co., Mass.	75¼
Monadnock Mills, N. H.	1000
Nashua Mfg. Co., N. H.	600
Naumkeag Steam Cot. Co., Mass.	140
Newmarket Mfg. Co., N. H.	100¼
Otis Mfg. Co., Mass.	1852½
Pacific Mills, Mass.	3600
Pepperell Mfg. Co., Me.	284
Plymouth Cordage Co., Mass.	260
Salmon Falls Mfg. Co., N. H.	275
Shaw Stocking Co., Mass.	117
Suncook Mills, N. H.	69⅛
Thorndyke Mfg. Co., Mass.	1200
Tremont & Suffolk Mills, Mass.	115
Waltham Bleachery & Dye Works, Mass.	129
York Mfg. Co., Me.	140

CANADIAN MILLS

	Bid.	Asked.	Last Sale.
Can. Col. Cotton	62¾	63½	64
Dominion Textile, pfd.	102½	104	107½
Montreal Cotton	134	186	...

New Jersey, Paterson. Finkelstein & Dimond are reported to have purchased the entire plant of broad silk looms lately run by Silber & Urdang, formerly Wolff & Silber, in the Harding Mill. Finkelstein & Dimond have 52 looms running on this class of goods at 28-36 Paterson St.

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TRADE MARK REG. U.S. PAT. OFF.

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¶ We have the factory, the skill, the specialized textile products, and the candor to serve you properly with profit to both parties.

¶ Let us cooperate.

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free to mills

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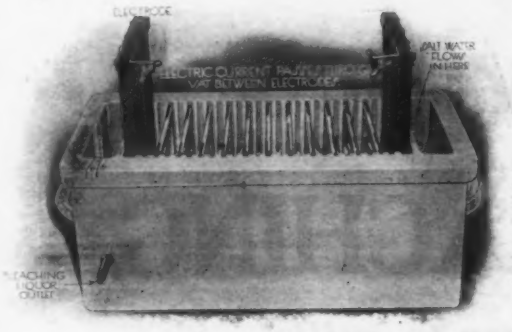
Make Your Bleach out of Salt Water.



The cut represents our passage type Electrolyzer producing in 8 hrs. the equivalent of 50 lbs. of chloride of lime, operating under 110 or 220 DC, and nothing is used but salt-water and electricity. The liquid produced is uniform in strength, and goods bleached are stronger and better in feel and color.

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having many years ago passed the experimental stage. We have sold Electrolyzers to many of the large Knitting Mills, both hosiery and underwear, and so far are not aware of any purchaser not being thoroughly satisfied. There is absolutely no question about its merits.

Write, giving amount of lime used daily, current available, with costs.

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CERTAIN users of Logwood prefer to have the coloring principle in a powder form.

Logwood Crystals are being manufactured to meet this demand.

Users of Hematine Pastes and Extracts of Logwood can have these supplied in this convenient form upon application.

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FOR BOILER FEED AND ALL INDUSTRIAL USES
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Makers of Soaps Especially Adapted for All Kinds of Textile Mfrs. Use. Send for Sample.

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Manufactured by
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Originators of the Sulphur Color Industry

AS REGARDS SHADE, DURABILITY AND COST OF DYEING, THE BEST SULPHUR BLACK EVER PRODUCED

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American Water Filters

Are SCIENTIFICALLY designed to meet the exacting conditions of all TEXTILE requirements.

We also install WATER SOFTENERS of any capacity to purify water for every TEXTILE purpose including the prevention of scale in boilers.

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"A LABORER CAN OPERATE THE AMERICAN"

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Seamless Hard Fibre Roving Can

The Only Can For Fine Spinners and the Very Best for All Grades of Work.

It does not have the riveted seam that strains and breaks the sliver.

NO SEAMS or RIVETS

Absolutely Smooth

No Waste or Broken Ends

Write for prices. MANUFACTURED BY THE

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The Best Hose Made for Use in

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Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

Awarded Gold Medal at the St. Louis Exposition, 1904.

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Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

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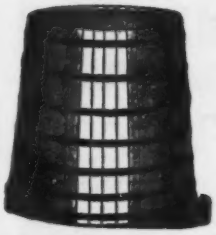

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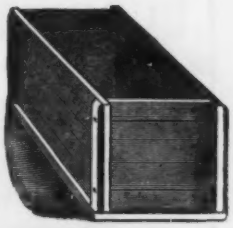

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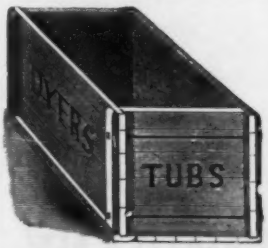

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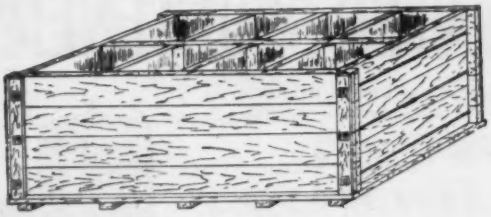

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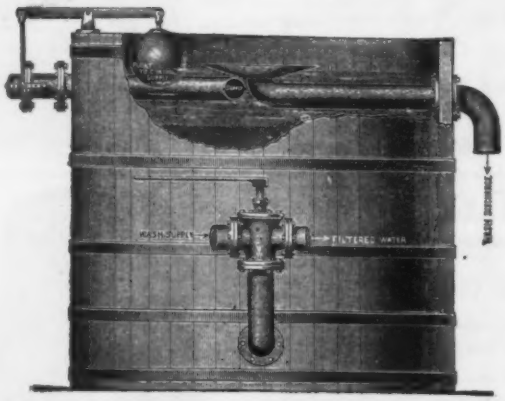
SUPPLY PERFECTLY FILTERED WATER



Because of the superior construction of our valve, a very fine grade of filtering material can be used.

Where needed in certain localities, a coagulant can be used in exactly the necessary quantity by means of our improved automatic device for regulating the supply.

We install plants of any capacity, and have received many expressions of satisfaction from representative textile mills using Wilson Filters.

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that are designed and built with a wide and comprehensive knowledge of the actual every day requirements in these lines. In trucks as in other lines it pays to buy the best. *Bailey's trucks are the kind you need.* Once tried always used. Tell me your needs and I will tell you about the truck that meets them.

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Full Fashioned Hosiery Machines

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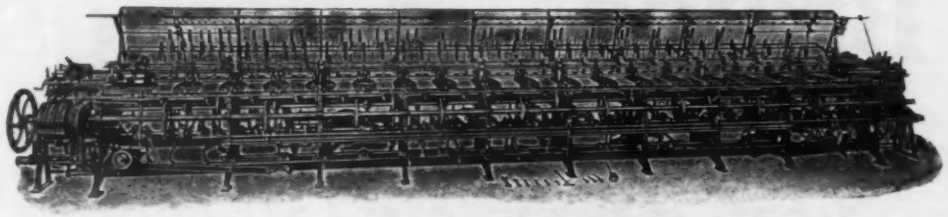

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Gold Medal, Paris, 1900 Numerous Patents Covering Special Improvements

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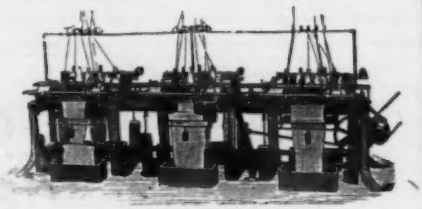
For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



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C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

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For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

The LOOPER THAT LOOPS!

Two thread lock stitch machine with reliable trimmer and raveler producing *indestructible, flat elastic* seam.

No hosiery or Underwear plant up to date without this machine.

DIAMOND OVERSEAMERS

for all classes of selvage goods, Full Fashioned Hosiery, Underwear, etc.

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for Knit Goods of all styles.

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for finest yarns.

Information, Samples and Specifications at Your Disposition

Full Fashioned Hosiery Machines

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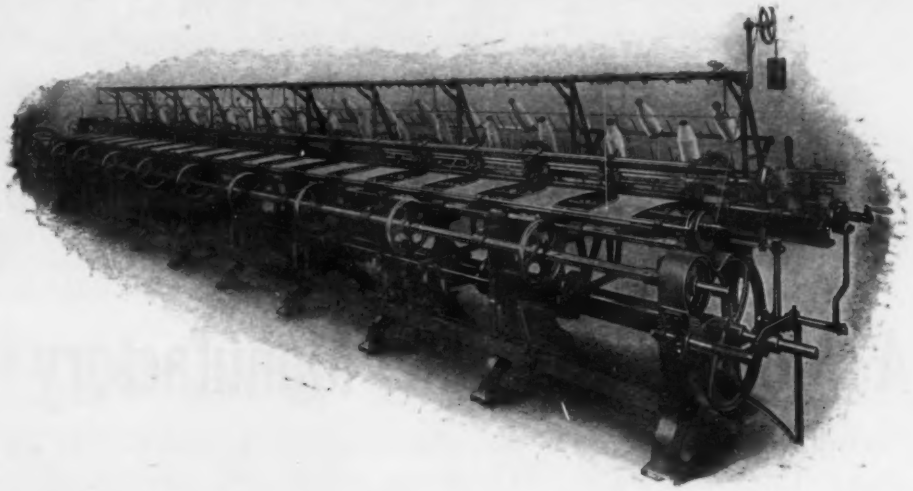
SCHUBERT & SALZER

CHEMNITZ, GERMANY

Largest Manufacturers of all Classes of Hosiery Machines



Best constructed and most productive machines in the market for the manufacture of Full-Fashioned Hosiery in Cotton, Lisle or Silk in all gauges, from 14 to 32 needles to the inch, from 12 to 24 sections.

Split-Sole, Plaiting, 2, 3 or 4 Color Striping
Single or Double Lace Attachment.

Also: New Jacquard Lace Hosiery Machines.
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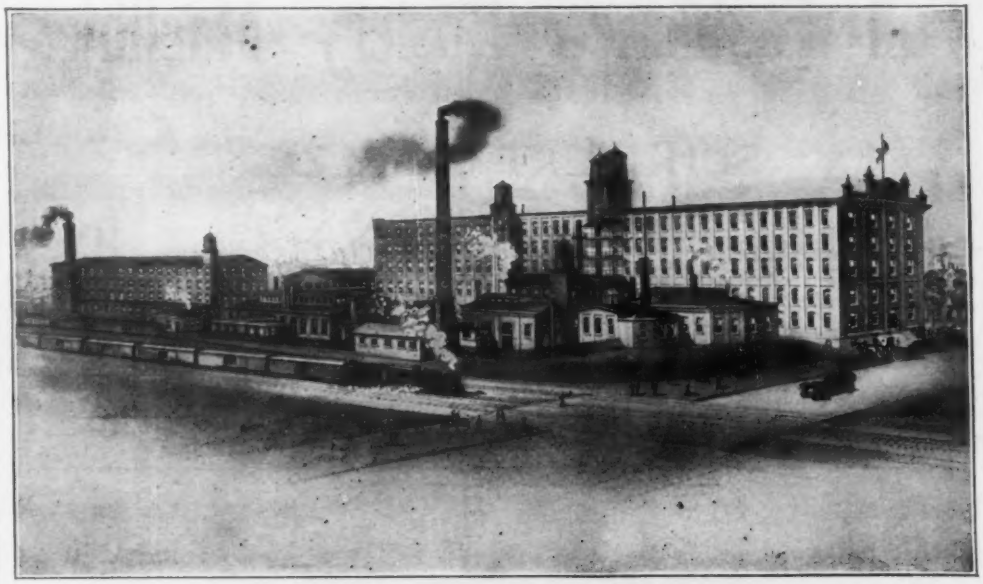

A Modern Machine Manufactory

Occupies a position in the manufacturing world like that of a club in the social world. When you join a club you are entitled to its privileges, such as the reading room, the billiard room, the baths, etc. When you buy a machine you are entitled to the privileges of the manufactory in which that machine was made. You get in the machine and in the attachments the benefits of the inventions from the expert department. You get in the repair parts the advantages of interchangeable repairs from the costly jigs and fixtures. You get on call expert advice, founded on wide experience, etc. What kind of a manufacturing club are you going to join? We invite you to join the best.

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Established 1889

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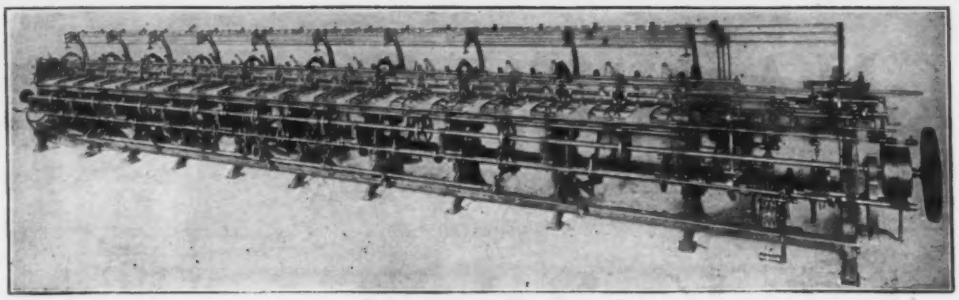

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Full Fashioned Hosiery Machines

COTTON SYSTEM

Built in all gauges, any number of sections, and with any attachments desired. Best constructed, easiest running and most productive machines on the market. Also builders of **LACE MACHINES** system "Gothrough," **NETTING MACHINES**, system "Double Locker," **LACE CURTAIN MACHINES.**

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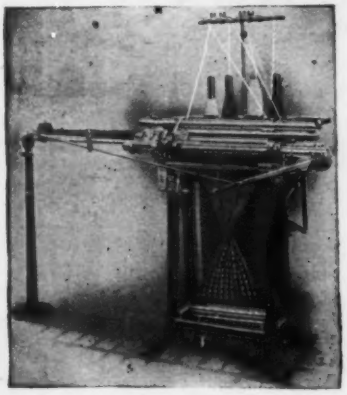

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BUILDERS OF

Flat Knitting Machines

FOR POWER AND HAND, FULL AUTOMATIC, ETC.

Links and Links (Pearl Stitch) Machines, Automatic Widening Machines, Jacquard Machines, etc.

Acknowledged by experts, users and judges to be

"The Best"

Machines can be seen in operation.

Flat Rib Machines, Improved Cotton System, Rashel Machines, Warp Knitting Machines, Winders, Standard Overseamers, Whipstitch Machines with Automatic Trimming Attachment.

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MANUFACTURER OF

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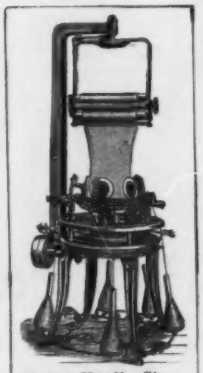
Circular Spring Needle Rib Top Machine.

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



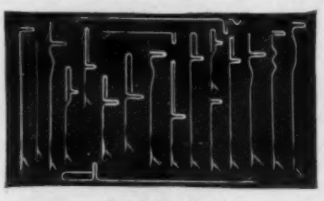
Spring Needle Circular Plain Body Machine.

Spring Needle Cylinder Rib-Top Machines

For making Cuffs, Drawer Bottoms and Shirt Borders.

Spring Needles.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.



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COLLARETTE ATTACHMENT.

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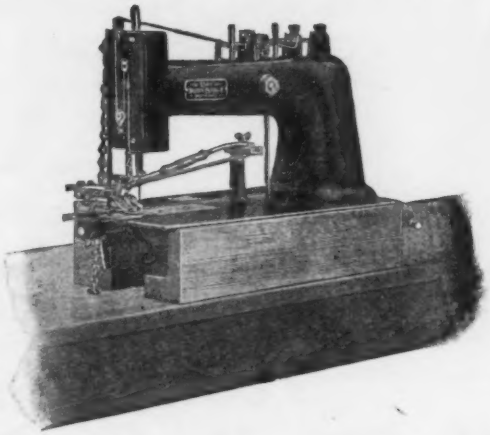
You Can Add to the Value of the Garments You Make And Lessen Their Manufacturing Cost

BY USING THIS

ELASTIC STITCH BUTTON SEWING MACHINE

No Threads to Trim

Saves 90% of the Needle Breakage



No Bobbins to Wind

Will Sew All Buttons With Any Thread

The ordinary button sewing machine uses two threads, consequently there are bobbins to wind, as well as shuttles and knives to cause trouble and expense.

Besides this needless addition to manufacturing cost, a two-thread machine makes no allowance for thread shrinkage and makes the buttons so tight that they won't stand laundry abuse, etc.

This means a loss of buttons hard to match, a feeling of resentment towards the maker and seller of the garment—and *a loss of repeat orders.*

The Elastic Stitch Button Sewing Machine reduces the manufacturing cost and betters the product.

Because:

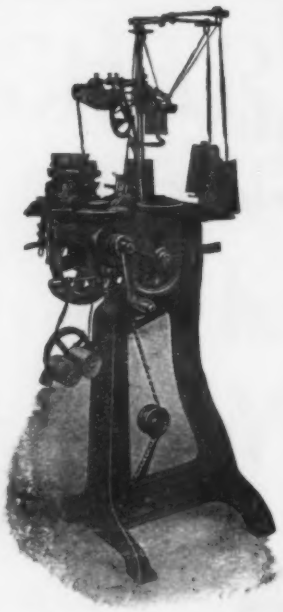
It does away with bobbins, shuttles, and knives, and reduces needle expense. Buttons are sewed on with an elastic stitch that allows for thread shrinkage, and for the wear and tear of the laundry. The buttons have a uniform raised, handsewed effect similar to tailor-made garments, and the simplicity of the machine makes it possible to operate it at much higher speed.

These things mean reduced expenses, increased sales—bigger profits.

Our "List-of-Users" booklet gives the names of some of the most prominent mills using this machine. Shall we send you a copy?

UNION BUTTON SEWING COMPANY

184 HIGH STREET - - - BOSTON, MASS.



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Full Automatic Knitter

The machine that stands for

QUALITY OF PRODUCT

Jenckes Knitting Machine Co.

SUCCESSOR TO
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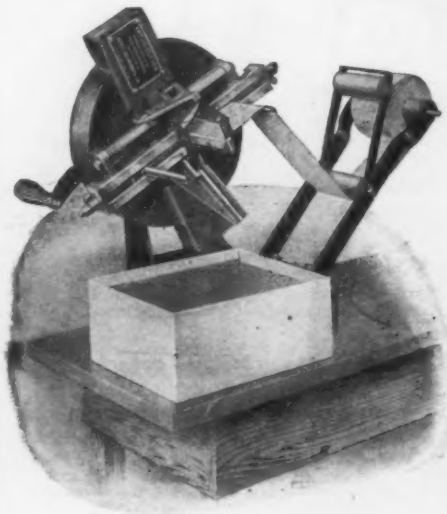

Automatic Cutting Machines

For cutting endless goods such as Tubing, Lining, Tape, Band, Braid, String, etc. into pieces of ANY LENGTH.

Will save their price in a short time.

The least complicated yet the most efficient cutter on the market.

Unrivalled for speed and accuracy.

Write for particulars stating your requirements.

ARTOS ENGINEERING COMPANY MILWAUKEE, WIS. 286 Lake Street

Union Special Cross Bar Stitch
Ornamental Machine Style 4900 E

A Hand Operation Accomplished by Machinery, Giving Swiss Handwork Effect

PILLAR BARS more closely spaced

IMPROVED CONSTRUCTION of Mechanism

ELASTICITY OF FABRIC AND SEAM retained

SAVING COST of inserting tape by hand

EVERY CROSS BAR visible across the tape

SPLIT PILLAR BAR taped mechanically

Sample of Garment Finished on Style 4900 E Machine
(One Operation)

Union Special Machine Company

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50-IN. MACHINE

L. F. FALES

MANUFACTURER AND BUILDER OF

SEWING Pamplet MACHINES

For all purposes where a number of rows of stitching are required. With either form of stitch, single thread chain, double thread chain, or lock-stitch, sewing material from 1-16 in. thick, up to 1 in. thick, and up to 120 in. wide. Furnished with any required number of needles, spacing to suit requirements.

DESIGNER OF SPECIAL MACHINERY

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PAPER SLITTING MACHINES

EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

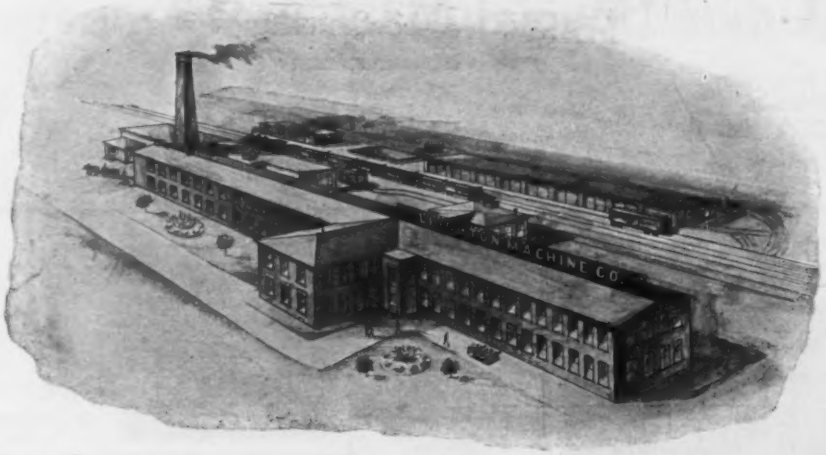
BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

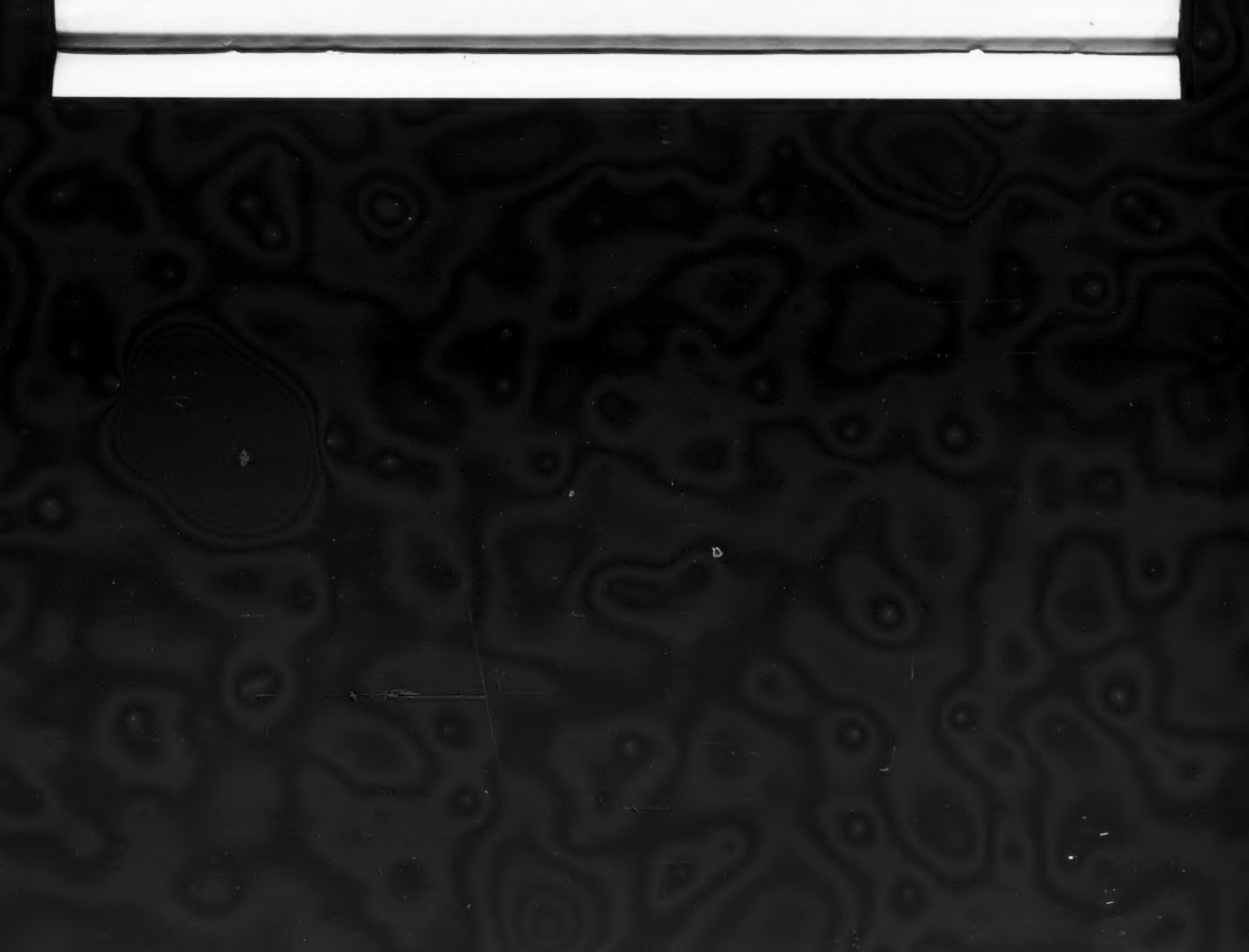
Up-to-Date Equipment Assures Best Product and Service



USE OUR CIRCULAR LATCH NEEDLE KNITTING MACHINES

To produce first-class Sweater Coats, Underwear, etc.

LEIGHTON MACHINE COMPANY - MANCHESTER, N. H.



SPUN SILK for KNITTING

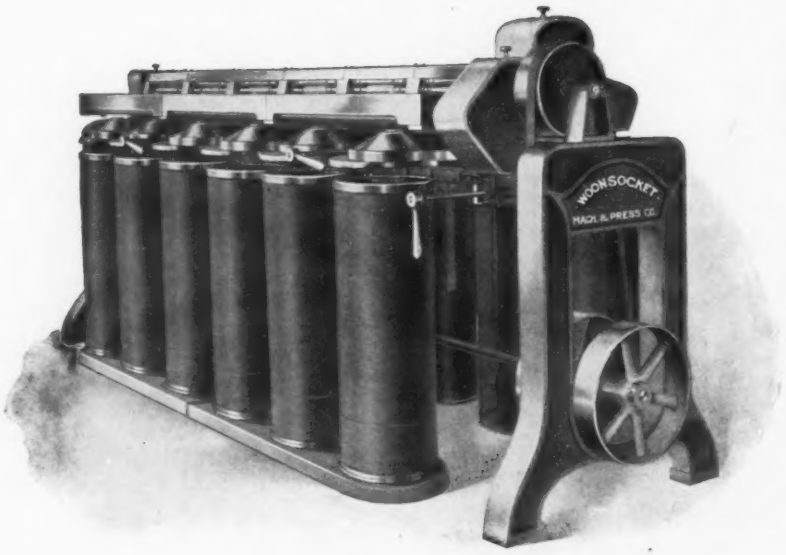
Most knitters who have gone into silk order it wound by the "UNIVERSAL SYSTEM" or install the No. 50 Self-oiling "UNIVERSAL" machine, which for this purpose is equipped with an emulsion trough to moisten the silk and is fitted to wind on enamelled wooden cones.

"UNIVERSAL" WINDING MACHINERY

Manufactured solely by

UNIVERSAL WINDING CO., BOSTON

IMPROVED
DRAWING FRAME



Woonsocket
Machine and Press Company

Woonsocket, R. I.

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A. W. ALLEN
2427 Mascher St., Phila.

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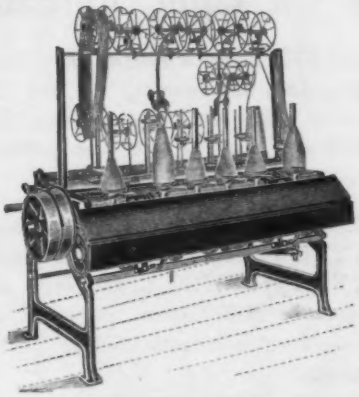

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Knitting Machines

built by

Acme Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

because we make a superior grade of needles.

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Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

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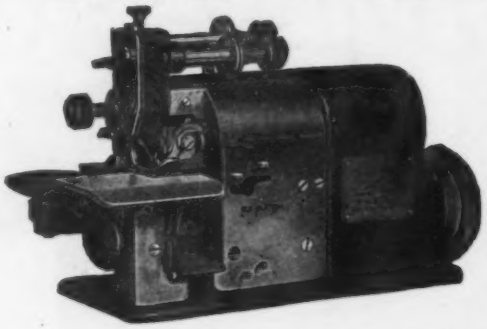
High Speed Overseaming, Overedging and Scallop Stitch Machines are

FAST
DURABLE
Light Running



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USE STYLE 18 for Horse Blankets.
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STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

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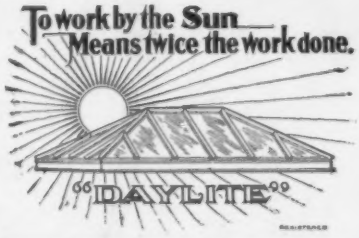

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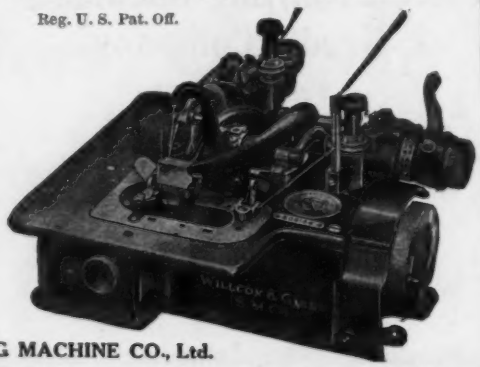

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3,000 Perfect Stitches Per Minute where factory conditions permit.

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THE MOST COMPLETE LINE OF

Sweater Coat Machines

Automatic Racking Machines with
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Herring Bone Stitch Coat Machines.
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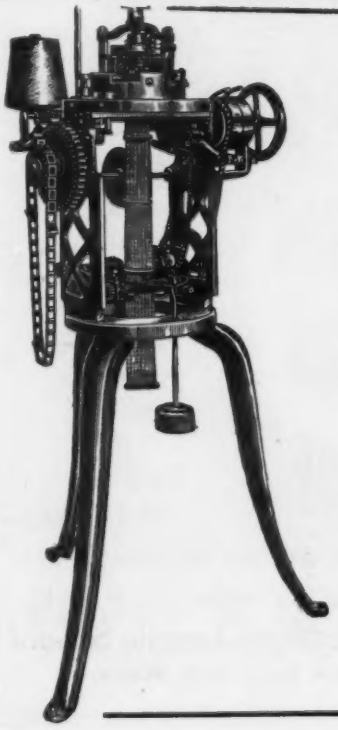

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FOR

Hosiery, Underwear, Sweaters, Toques, etc.

You can economize on production costs
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Improved Automatic Ribber

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Full Automatic Knitter

Estimates Furnished for Complete Equipments
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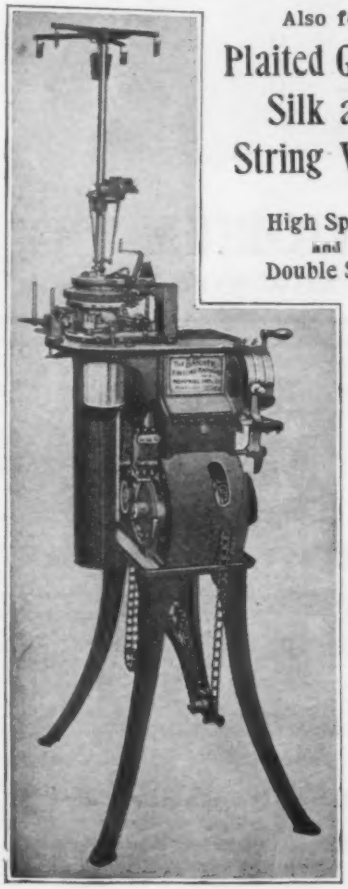
FULL AUTOMATIC MACHINES

BUILT FOR EITHER PLAIN OR SPLIT FOOT WORK, SINGLE OR DOUBLE FEED

Adapted to Manufacture Hose with Linen or Mercerized heel or toe



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Plaited Goods, Silk and String Work

High Splice and Double Sole

Five Superior Points:

Largest Production

More Yarn Changes

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Produces a Superior Quality of Work.

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Day and Evening Instruction in

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Full Automatic Knitters

For Ladies', Half Hose and Footing, also for

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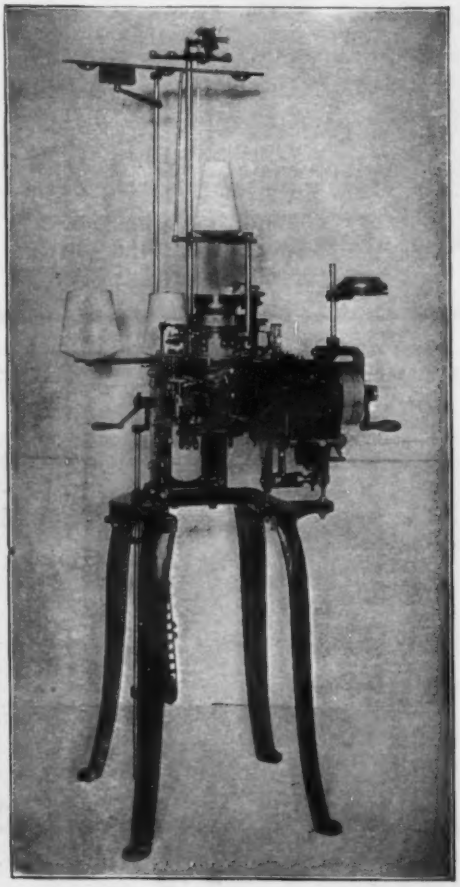
Full Fashioned Legger and Heeler for Full Fashioned Hose.

Measure lengths like a Rib Frame.



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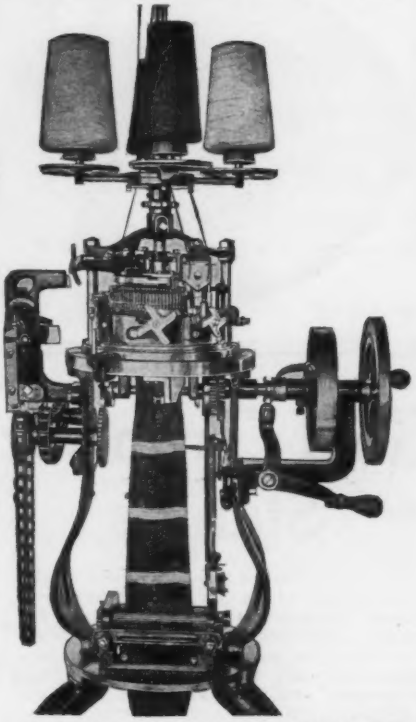
Established 1870 LAKEPORT, N. H. Incorporated 1890

Spring and Latch Needle Machines

for Both Rib and Plain Work Economically Producing

A GREAT VARIETY OF FABRICS



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Made in sizes from 5″ to 7″ inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

These machines are built in a thorough and workmanlike manner and are second to none in the market.

The Crawford stop-motion is applied when requested

SOME CRANE FEATURES.

Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20 in. and 40 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

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Makers of Two Thread Elastic Lock Stitch Loopers

ALSO
ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.

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Our Gold Stamps now being used by the leading mills of the Country, are acknowledged the superior of any, they are the most rapidly applied, the separation being instantaneous, and their grip upon the fabric exceptionally firm. Their brilliancy unsurpassed, making a rich and dignified advertisement upon the Hosiery, Neckwear, etc.

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They know"

Buy Meyercord Stamps and avoid trouble

The Meyercord Company

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Recognition or Interference, Which?

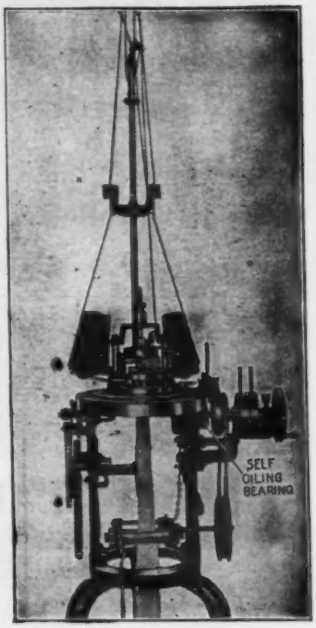
Our **President** having "put-it-up-to-us" to decide whether or not the time had arrived to RECOGNIZE the BELLIGERANCY of our competitors, we take this means of informing the HOSIERY trade that in-as-much as the relations between this Company and its respected fellow manufacturers are so agreeable we cannot see fit to either acknowledge a "STATE-OF-WAR" or a "casus belli."

YOU will RECOGNIZE the difference in your FABRIC if you install any of the products of this "scrappy" plant.

YOU will not experience the INTERFERENCE of yarn troubles and many "wounded" tops if you use our STOP MOTIONS.

Your PATENTABLE ideas will be properly developed and PEACE of mind will result.

Write today. Box "R"



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ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
56 National Knitters 3¾", 216 Needles.
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54 Standard "B" Knitters for sizes.
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500 Dozen Hosiery Shaping Boards.
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1 ½ h. p. Electric Motor.
1 Singer Nat. Button-hole Machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
1 Payne 40 Spindle Skein Winder.
1 Abel 36 Spindle Cop Winder.
1 Union Special Overedge, Style 15.400.
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1 Underwear Mangle.
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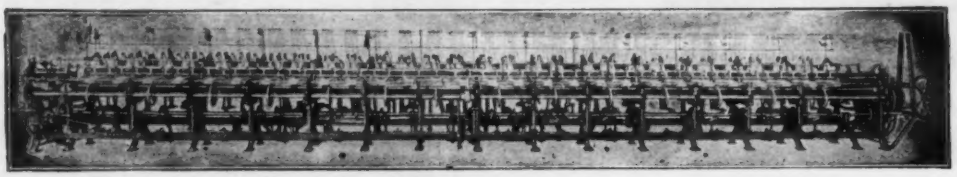
42 Union Spec. Sewing Machines, various styles
50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.



H. ALBAN LUDWIG, Chemnitz, Saxony

Manufacturer of the famous **LUDWIG'S**

FULL FASHIONED HOSIERY (and Underwear) MACHINES

System "Cotton" (in any gauge or sections—for all styles and qualities). Special important features: Divided Narrowing Machines, Patent Internal Cam Movement, Movable Knocking-over Bits. RIB-TOP MACHINES (Ludwig's High System—Cotton's System).

LATEST SUCCESSFUL PATENTED IMPROVEMENT!

One and One Rib Machines with Automatic Narrowing for Full Fashioned Hosiery and Underwear

OUR MACHINES SATISFY ALL

THE MANUFACTURER obtains the largest possible production; THE FOREMAN has the least possible trouble; THE KNITTER earns the highest possible wages,

AND WE CAN PROVE IT!

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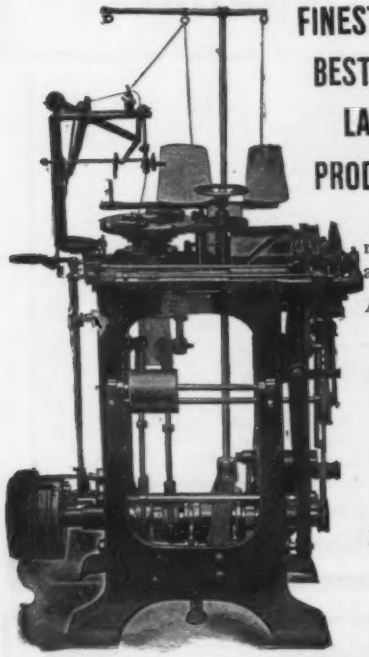
"NATIONAL"

Stands for



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BEST FABRIC
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Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

Also
Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

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Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
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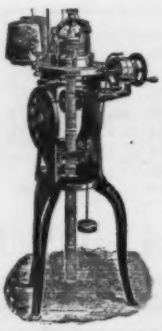

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Branson, Rib Top Cutters, Semi-Auto. and 15/16 Auto. Knitters up to 200 Needles.

Our mantle machines are the leaders. Positively the best made.

Open top shirt machines.
Needles and Cylinder Bands, Etc.

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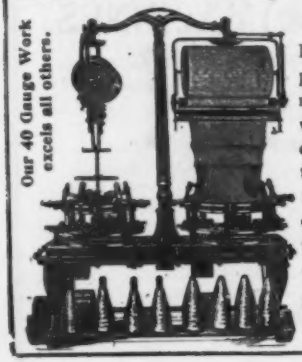
We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



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Slides, Sinkers, Needle Jacks, Dividers, Silk Sinkers, Burr Blades, Nosings, Thin Head Sinkers, Web Holders, etc., made to order.

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can easily be removed by picking it out with the fingers. It is not necessary to pry the stitch out with a knife, because the wire is almost as fine as hair. It does not injure the finest silk or lisle hose, and the cost of maintenance is less than any other stitcher.

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If Your Employees Use

FELTON'S

MILL BRUSHES

Because Felton's Brushes will cost you less, and will last longer than other makes. For being the largest makers of mill and factory brushes, Feltons can buy the best materials at the lowest prices and can afford to take a smaller margin of profit.

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Especially Adapted to

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Plain Goods
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Three Color Stripes
Tipped Heel and Toe
White Foot
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Garter Top
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Most Stockings—Best Fabrics—Longest Life

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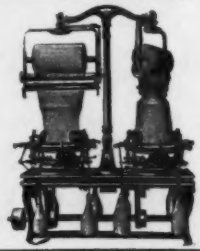
IN THE WESTERN HEMISPHERE

Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 8764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

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LEADER OF KNITTERS

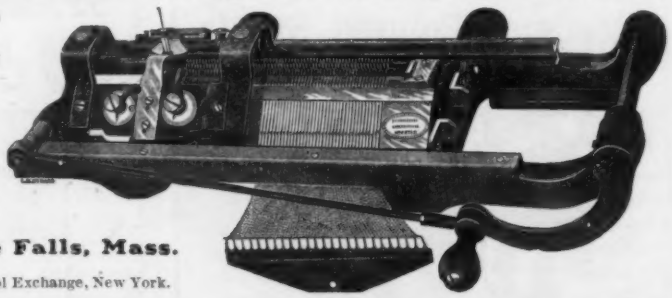
Original and Still the Best

Most widely used ; being operated in every civilized country.

Our Collarette Knitter Knits almost any conceivable style and with selvage ends.

Circular Rib Top and Seaming Machines.

Send for Prices and Catalog.



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Knitting Machine
COMPANY,

P. O. Box 5888, **Chicopee Falls, Mass.**

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L. D Sanborn, Room 513 Wool Exchange, New York.

NEW ENGLAND BUTT COMPANY,

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ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

SOLID SASH AND CURTAIN CORDS,

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AND ALL BRAIDED FABRICS.

Patent Loopers

Single, double and two thread Stitch.

with the
Patent Raised
or
Straight Points

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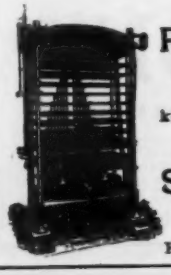
The CRAWFORD

HOLLOW STEAM
PLATE PRESS
For Knit or Woolen Goods

The most reliable machine of the kind on the market.



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To Temper or Not to Temper. Large and Complete Stock for Prompt Shipment

SEAMLESS STEEL TUBING

Bars, Strips, Sheets, Rods and Wires. Close Forged Cylinder Rings and Dials.
Twist Driils. Send for Catalogue "D." Milling Cutters.

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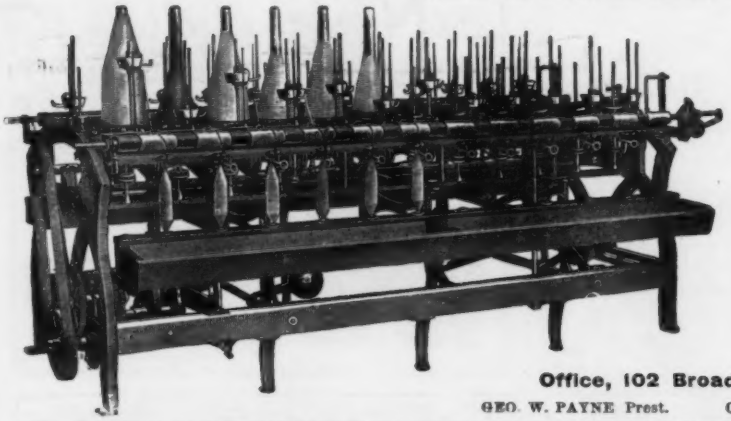
OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



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Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

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Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

The cut represents our newly patented fully automatic left and left power machine for producing fancy stitches that formerly could only be produced by hand.

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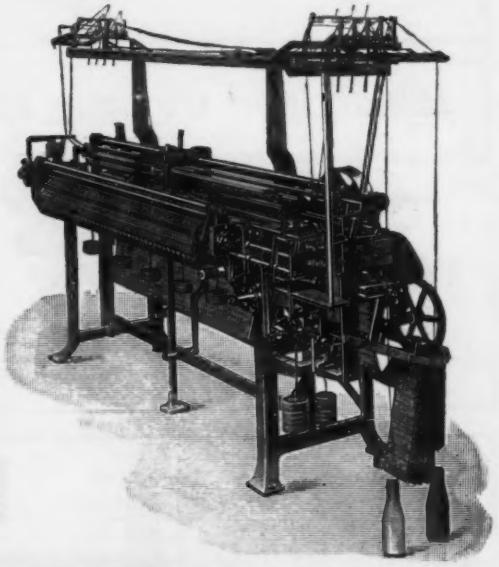

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Drying Forms.

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

Also have other labor-saving devices, and upon application you can get prices and full information on same.

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New Jersey Wire Stitcher

Highest Grade

Machine for Rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

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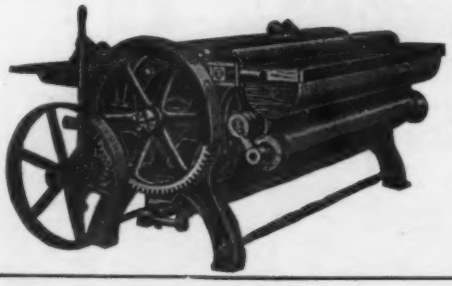

In comparison with other machines (for use on knit goods, ribbed, flat and fleeced lined underwear) this machine will save you 50% through increased production and decreased expenses of your **Finishing Department.**

BREAKS NO BUTTONS.

It is adjustable to all grades, and gives a finer finish than that obtained on any other machine.

Capacity of smallest size 600 dozen per day.

Write for details and references.

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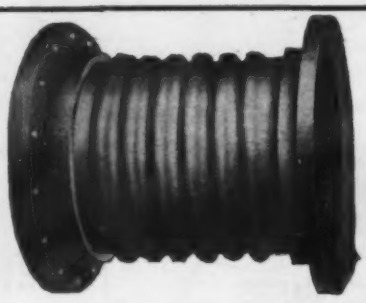

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For exhaust and live steam

Guaranteed to take care of the expansion in lines of steam pipe. Made for all sizes of pipe.
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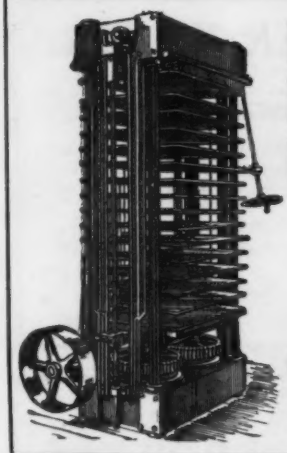

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For Hosiery and Underwear Trade.

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Special Needles made to order.

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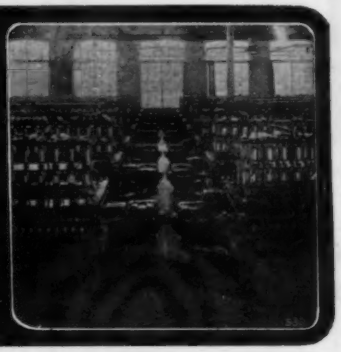
"NO TROUBLE" Motors

They require less attention than belts and shafting and cost less to maintain. We make a specialty of this work.

Write for our Bulletin 126 Y which tells all about it.



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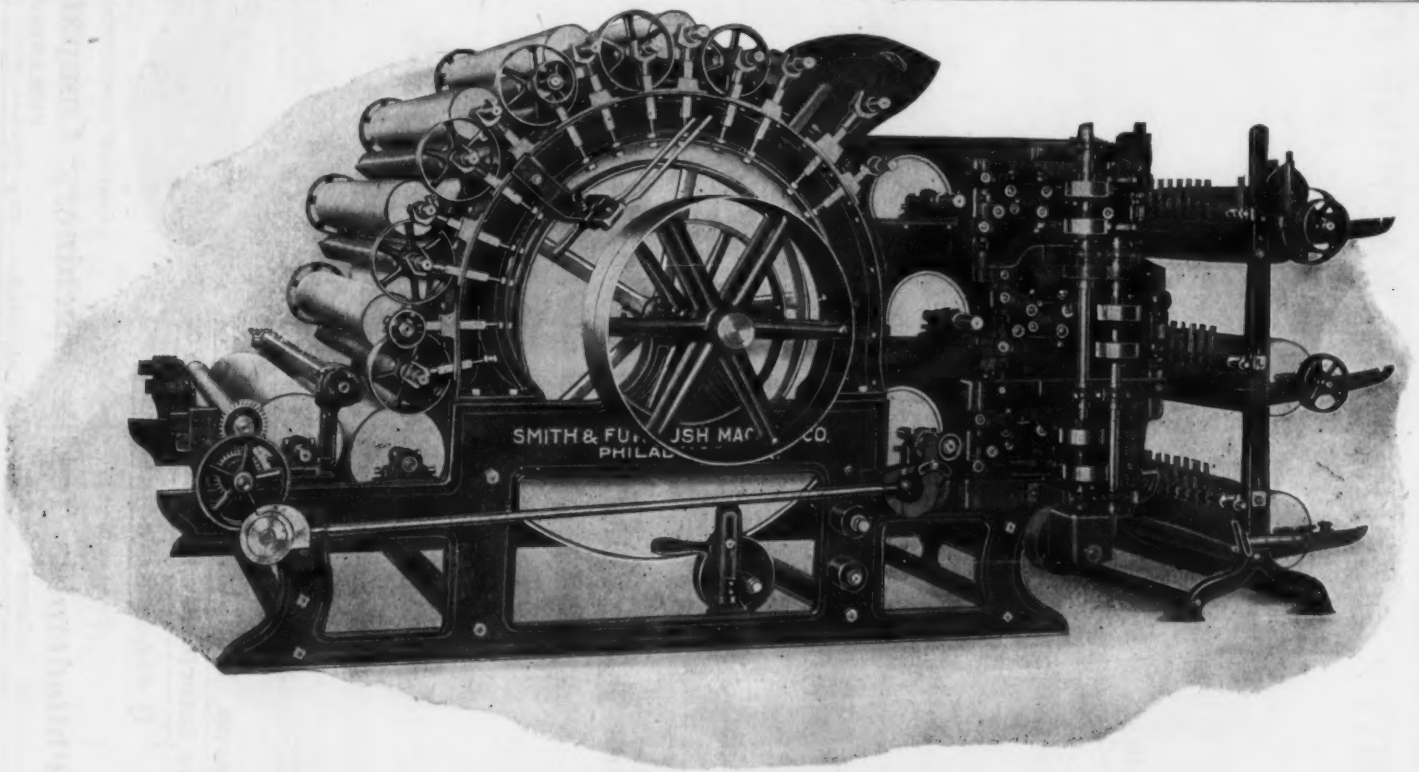
WOOL CARD — Circular No. 63A



THREE DOFFER FINISHER CARD No. 8

We build a complete line of Woolen and Worsted CARDING MACHINES to. meet all requirements.

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MANUFACTURERS OF

CARDS { Woolen, Worsted, Cotton Waste, Shoddy and Jute Cards.

FEEDS { Self Feeds for wool, worsted, cotton, or jute, also Camel Backs, Blamires, and Apperlys for Cards.

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TWISTERS { Plain and Fancy Twisters for Flake, Loop or Bourette Yarn.

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WARPING MACHINERY { Copper Cylinder Warp Dressers with single and double size pans; Beamers; Section Warp Mills; Warp Mills; Dresser Spoolers for worsted or wool.

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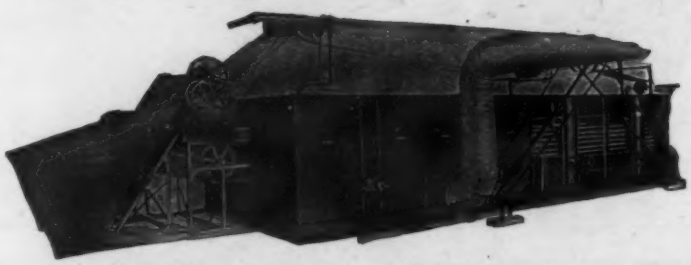
Machinery for Manufacturing Gunny Bagging from Old Gunny Bagging
Felting Machinery for Manufacturing Soft Felts or Commercial Batts, for Mattresses, Comforts, etc., made from Cotton Waste, Linters, Jute, Wool, and Wool Waste

SPECIAL CIRCULARS FURNISHED FOR EACH MACHINE

Look on the Other Side of This Page

Proctor **Drying Machines** *Fire Proof*



Yarn Dryers
Scouring Machines
Fans

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Stock Dryers
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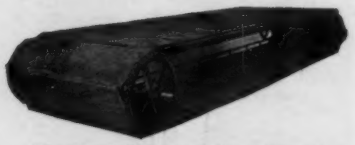
Apron troubles overcome by the Interlocking Chain Conveyor

It needs no adjustment



Conveyor Separate from Dryer

Address Dept. E.

Philadelphia Textile Machinery Company

Hancock and Somerset Streets **PHILADELPHIA, PA.**

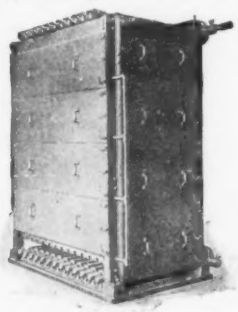
Southern Representative, H. G. MAYER, 1212 Realty Bldg., Charlotte, N. C.

Cell Drier "repeat orders" speak for themselves

List No. 10. (No. 1 revised to date.)

This is the first of a long series of lists of repeat orders. Send for the others, latest bulletins, etc.

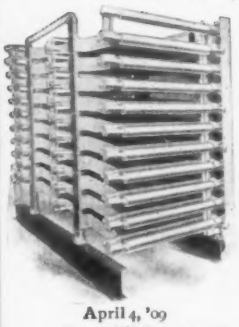
A Massachusetts company, the name and address of which will be sent on request, is now operating seven Cell Driers as indicated below, the date of each order being given.



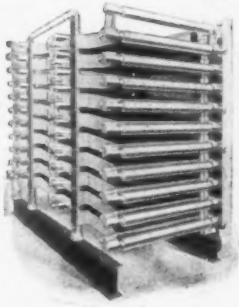
Dec. 2, '04

July 24, '05

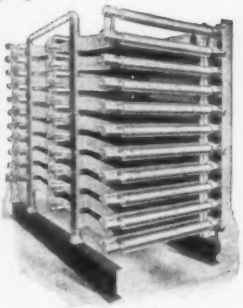
Oct. 20, '07



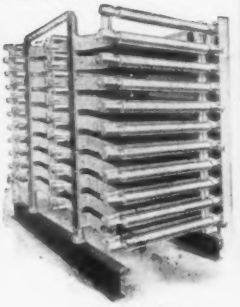
April 4, '09



Nov. 4, '09



March 30, '10



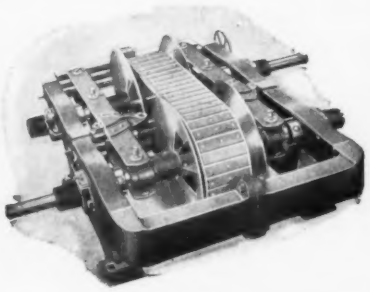
Dec. 30, '10

In addition to the above this customer has ordered eight more cells to increase the size of several of the horizontal cell driers. This the new construction makes easy.

Perhaps you could use the Cell Drier to equal advantage.

Boston Office,
147 Milk Street

Cell Drier Machine Company
Taunton, Mass.



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It saves and pays in a hundred ways.

Let us tell you how.

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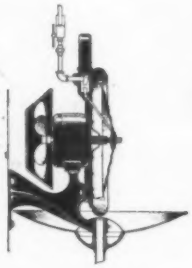

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(Patented)

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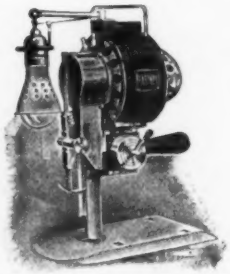

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